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INDIA AND NEW ORDER

(*An Essay on Human Planning*)

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BY

SRIS CHANDRA CHATTERJEE, C.E.,

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WITH DEEP DEVOTION
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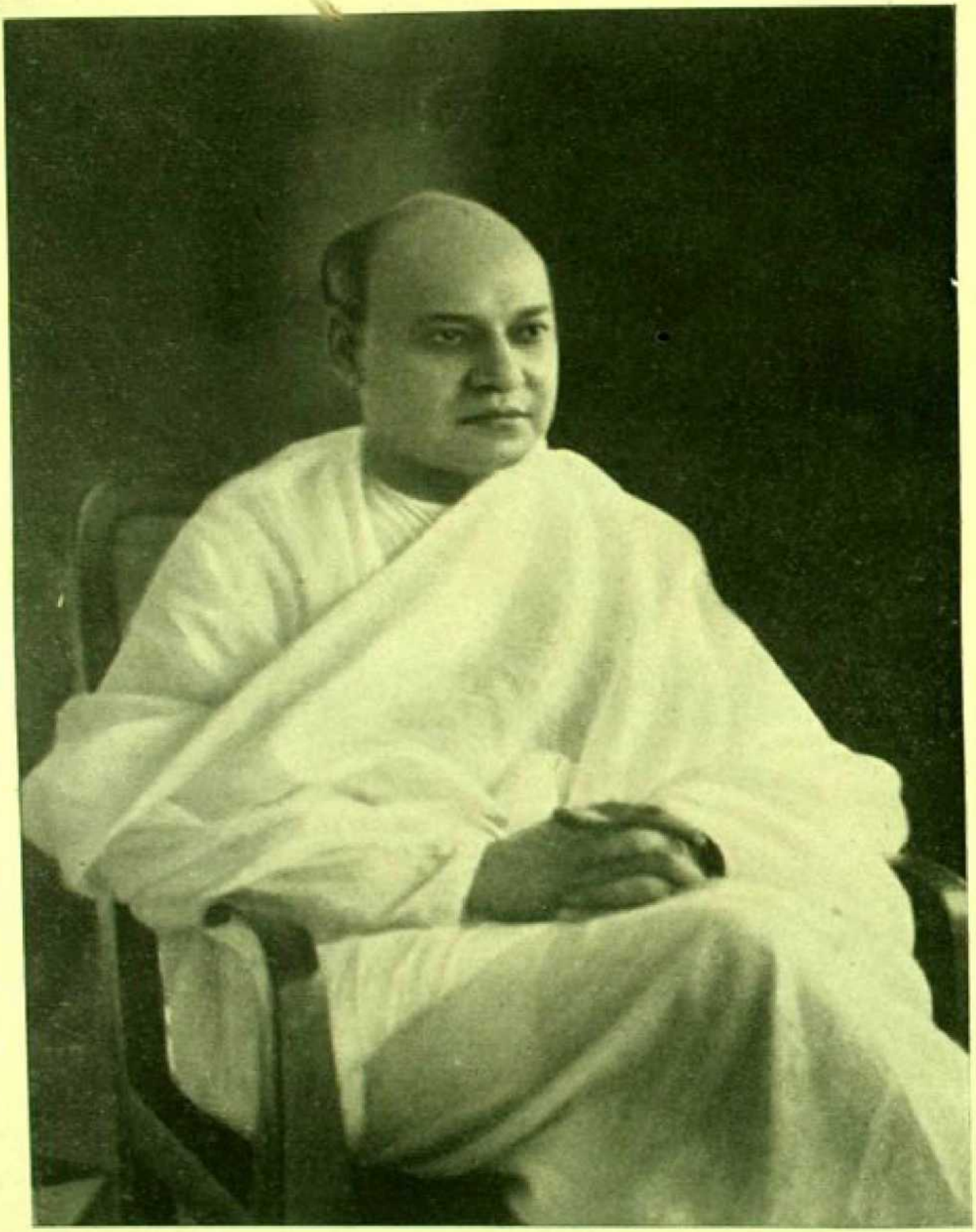


PROFESSOR P. N. BANERJEE
Vice-Chancellor, Calcutta University

FOREWORD

Mr. Chatterjee's thought-provoking thesis on **India and New Order** *will, I am sure, be read with deep interest by millions of our countrymen who have lived through two global wars during the course of a quarter of a century. The book seeks international co-operation. It recommends rational co-ordination. It lays stress upon synthetic researches, scientific, social, economic, cultural and spiritual. It aspires to combine the East with the West on a common platform. It visualises an all-round national renaissance. Its main objective is the objective of the new world order attempted by the United Nation's educational, scientific and cultural organisation.*

Mr. Chatterjee's deep devotion to his country desires the replanning and reconstruction of Indian life on traditional basis. The author warns the conscience of India against unplanned and indiscriminate expenditure on projects which do not conform to the democratic ideals of the twentieth century. He pleads against indiscriminate industrialisation and insists on national health, social regeneration and the employment of basic education. The problems of India to-day and of to-morrow are indeed vast. They include the problem of feeding, clothing, housing and educating more than three hundred millions of human souls.

Mr. Chatterjee's essay has dealt with human values of art and architecture, and planning rural and urban

regions in ancient and mediæval India as compared with those in contemporary Western countries.

The University of Calcutta has adopted his scheme and syllabus for a School of Indian Architecture and Regional Planning.

Sculpture, painting and allied arts and crafts according to his views cannot properly grow without architecture which is the repository of all fine arts.

It is a matter of gratification to me and the University of Calcutta that most of the views expressed by Mr. Chatterjee in his work has enlisted the sympathy and the support of eminent scholars in India and abroad.

Asutosh Mukherjee

VICE-CHANCELLOR,
Calcutta University

Senate House, Calcutta:
The 11th January, 1949.

INTRODUCTION

Sris Chandra Chatterjee's provocative and timely essay on *India and New Order* covers a great deal of ground in the field of history, planning, culture and humanity with much of which I am not competent to deal. This introductory note will therefore be confined to certain aspects that are within my range.

In the first place, it would be impossible to overstate the critical urgency of an institution for training architects and planners, in addition to the one J. J. School of Art in Bombay and the incipient efforts at Delhi. India's program and development, however curtailed it may be due to the exigencies of the anti-inflation program, will require far more architects and planners than it can probably create even with the addition of the kind of institution Sri Chatterjee has so long championed. Considering the minimum volume of indispensable work, this is true whether considered from the viewpoint of economy, of functional fitness, of emotional appeal of the product; or even from the point of view of the relative cost of the continuing need for sending so many men abroad for training. And parenthetically I would heartily endorse the very dim view Sri Chatterjee holds as to PWD design as it prevails in this country, having regard to the same important aspects.

I have included emotional appeal in this statement, for every nation and certainly an emerging nation has a desperate need not only of filling physical requirements, but of creating by means of them, urban and rural plans, and structures within them that will have

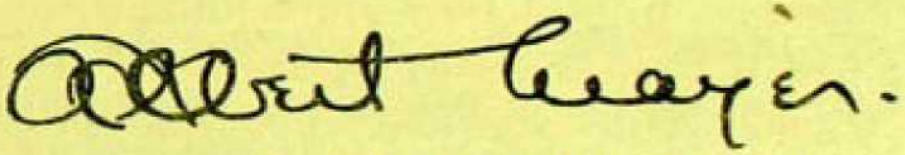
warmth, distinction, that are not only stolidly worthy in fact, but that speak directly to the people, without explanation. No one can say that India has for generations succeeded in that.

Sri Chatterjee speaks of planning in India in various periods of its past with a great deal of admiration and fervor. He also speaks of characteristically Indian elements, of the Indian character of social life which the planner should understand and take account of. No one can disagree with that, and I sincerely hope that his next step will be to develop this general thought as concretely as possible, actually with diagrams and explanations, bringing out both the technical and social aspects. For in the course of considerable planning work in India I have encountered the same thesis with which I am in hearty agreement, but have even after considerable seeking, not had any concrete answers or specific proposals that went any further than I as westerner had myself been able to go.

There is one section of this essay with which I find myself partly in agreement and partly in disagreement. Sri Chatterjee outlines an ambitious program of interlinked regional planning which will cover the country. He speaks with admiration of our work in America, and cites the TVA. But even with us, we have so far only one TVA and a small number of other projects based on somewhat the same principles. Under Indian conditions as they exist to-day, such a grand program as he outlines is not feasible. One or two or three pilot projects of this scope would be the limit of my ambition for such reginal efforts, and by all means every effort should be made to initiate such pilot

projects. Much in the way of trial and error will be uncovered, the personnel involved will gain experience and know how, the nation will be able to appraise the results. It is only then, it seems to me, that the general program he outlines can be realistically undertaken.

However, on whatever basis or from whatever viewpoint you may consider it, further delay in initiating specific proposals and programs such as he suggests, will be time needlessly and tragically lost. For undoubtedly work will go forward whether or no, but it will not be nearly adequate in functional fitness and distinction to the opportunity and the challenge that India's development offers.



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Architect & Townplanner,
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PREFACE

Perhaps the most outstanding impression which is left in the mind after reading Mr. Chatterjee's "India and New Order" is of the author's Breadth of vision, his deep humanity, and his realization that the future planning, architecture, and visual arts of India will spring from the needs, the age-old traditions, and the imagination of the Indian people.

In this book Mr. Chatterjee surveys a vast panorama of human activities in his own and in other countries. On his knowledge of planning and architecture in ancient India few Europeans are in a position to comment, but to one who has had the privilege of knowing and working with him, his wide erudition was always impressive. However, he is not content to consider India's technical problems in a narrow and isolated manner; he realizes that economic and social factors are of vital importance in the carrying through of planning schemes. He has also realised for many years that the most urgent of all India's planning needs is in Regional Planning, and in the problem of the hundreds of villages scattered throughout each region. He rightly devotes considerable space to the villages of India, which are the basic units of the whole country, and to practical and realizable improvements which could be made before the impact of industrialization has spread throughout the land.

During the recent War a number of us who came out to India with the Services felt strongly that one of her great technical needs was for more architects and regional town planners. The facilities for training

architects were confined to one small school in Bombay, while for 400 million people there was not even one Planning School. When we began to look into this tragic situation we soon discovered that Mr. Chatterjee had been striving to set up a School to meet these needs for over twenty years. Working with him, first on the preparation of a detailed syllabus, and later in a University Committee, one's admiration for his tireless energy, tenacity, and refusal to be daunted by the strongest opposition, grew apace, and it became obvious that his great store of knowledge should be set out in the form of a book which could influence thousands.

As a European planner who has been deeply concerned by the lack of Physical Planning in India, but who looks to her for a great renaissance both in living conditions and in cultural standards, it appears that this desirable objective can only be brought about by the careful and popularly supported planning of physical resources at the national, regional, and local levels. "India and New Order" should do a great deal towards making this more fully understood.

Percy Marshall

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18th April, 1949.

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(Major P. J Marshall is the Assistant Senior Planning Officer, in charge of the Reconstruction Areas in London, in the Town Planning Department of London County Council. Formerly he was a Research Officer in the Headquarters of the Ministry of Town and country Planning. Moreover, he is now a Member of the Board of Architectural Education, of the Building Industries Committee of the London Regional Council for Higher Technological Education, of the Building Needs Committee of the Architectural Science Board, and of the Executive Committee of the Association of Building Technicians.)

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AUTHOR'S INTRODUCTION

The present essay on Human Planning has been developed from the second part of a thesis written by the author, at the instance and under the instruction of the Hon'ble Dr. Syamaprasad Mookerjee, presently Minister of Industry and Supply to the Government of India, which dealt with a comparative analysis of the secular and spiritual outlooks of India and the West, with special reference to the inherent spirit of architectural arts, and town and village plannings, including socio-politico-economic adjustments in ancient, mediæval and modern India. The first part of the thesis, styled as ARCHITECT AND ARCHITECTURE : THEN AND NOW, has recently been published by the University of Calcutta. Professor P. N. Banerjee, Vice-Chancellor of the University and Indian Delegate to UNESCO, has kindly helped the author in many ways.

With the eye of a planning architect the author has attempted to co-ordinate various aspects and elements of his Indian National Renaissance Planning program pertaining to International Human Planning. Conscious of his limited knowledge concerning certain subjects and problems, he has incorporated special articles kindly contributed by enlightened experts for the purpose of clarifying, modifying and reinforcing the main ideas and principles underlying his constructive scheme.

The possibility of difference of opinion on points of controversial nature does not tend one to expect that the views and arguments of the author will be shared by

all. However, his modest essay, in two separate volumes, is intended to convey to the reader some modest idea of how the people in ancient and mediæval world worked their social plannings of more or less a common character, how gradually the fundamental principles of their life and living underwent changes, how Eastern ethical doctrines differed from those evolving in Western countries with the progress of time, what forces compelled the people of the West to differ from those in this country, what is the guiding spirit of American life, how the spiritual solidarity of Hindu India has remained intact through the millenniums, how to re-plan and materially strengthen present resourceful India without damaging her traditional structure and her spiritual outlook, and how civilization can be saved by the creation of a New World Order, how men's aspirations can be unified socially, politically, economically and spiritually so as to ensure inter-religious harmony and international security.

Suggestions for improvement of this essay will be gratefully accepted and duly considered when publishing a revised and enlarged edition with adequate illustrations, plates, designs, diagrams, maps, data, explanatory notes and glossary of Indian terms, elucidating both the technical and social aspects of Human Planning outlined within a small compass by the author in this pilot scheme.

One of the objects of this publication is to suggest to the Ministry of Education to the Government of India to establish such kind of real *Indian* Schools of Architecture as can judiciously develop the genuine spirit of Indian classical architectural arts and crafts and industry, avoiding hybridizing the same by incongenial,

exotic, elements and absolutely materialistic faiths and ideals,—to effect which the humble author has been striving incessantly, for the last thirty years, since he resigned his permanent service under the Government of Bengal, in response to the call of Mahatma Gandhi for Non-Co-operation.

Havell, Coomaraswamy and other scholars have expounded beautifully, lucidly, the sublime philosophical tenets dominating the character of ancient Indian arts and architecture. In fact they enlightened the world in respect of the international value of Indian Art which is expressive of the Soul of Indian Civilization. Havell, moreover, tried his best, although in vain, to have Indian architectural traditions chiefly utilized in the construction of New Delhi edifices and common peoples' structures. But, none of them felt the vital necessity for training truly *Indian* architects, craftsmen, etc., from organised institutions under the Departments of Education, and from actual constructions in genuine Indian styles.

At the instance of the author, in August, 1938, the University of Calcutta, under the Vice-Chancellorship of Dr. Syamaprasad Mookerjee, adopted a scheme and syllabus for a Degree Course in Architecture that was appreciated as the first of its kind in India. Owing to changed conditions and circumstances, however, during the last World War, separate Courses and Syllabuses leading to Degrees for Master of Architecture and Master of Planning, had to be prepared with the valuable collaboration of Mr. Percy Marshall of rare qualities of head and heart, and adopted by the Senate to replace the said Degree Course which could not function then. In April, 1943, the Scheme with

the Courses was submitted to the Government of India for financial support. The Ministry of Education, in November, 1947, agreed to allocate a grant to enable the establishment of the proposed Calcutta University School of Indian Architecture and Regional Planning on condition that it would have to function as All-India School. No grant so far has been allotted by the Central or West Bengal Government on this account.

Now that the present Ministry of Education has so generously sympathised with the movement for rescue of Indian Architecture as to set up an All-India Board of Technical Studies in Architecture and Regional Planning to frame courses, etc., one may hope that the wise Ministry will foster the developments of India's architecture and planning on modern scientific lines, yet conforming to the marvellous organizations and the supreme spiritual outlook of the Indian nation that persisted for millenniums till the middle of the nineteenth century.

In his thoughtful Introduction to this volume, Col. Mayer has expressed his partial disagreement with one section of the composition concerning interlinked regional planning. His idea of initiating two or three pilot projects in the way of trial, however, is very reasonable, and profitable too, before actual regional planning operations are taken in hand. But the intention of this publication is not to deal elaborately with the technical process of framing and operating planning projects, as has been clearly mentioned in page 71, but just to suggest to the readers some idea of broad-based National and International Planning,—the vision of the resplendent India and The World of To-morrow.

And, as such, details in respect of physical planning have been excluded. Such details will obviously be dealt with if the author's "next step will be to develop this general thought as concretely as possible, actually with diagrams and explanations, bringing out both the technical and social aspects." For the present, therefore, instead of confining his attention to the question of a local concern he has, on principle, placed his thought on a high national plane.

49, MALANGA LANE,
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The 6th January, 1949.

SRIS CHANDRA CHATTERJEE

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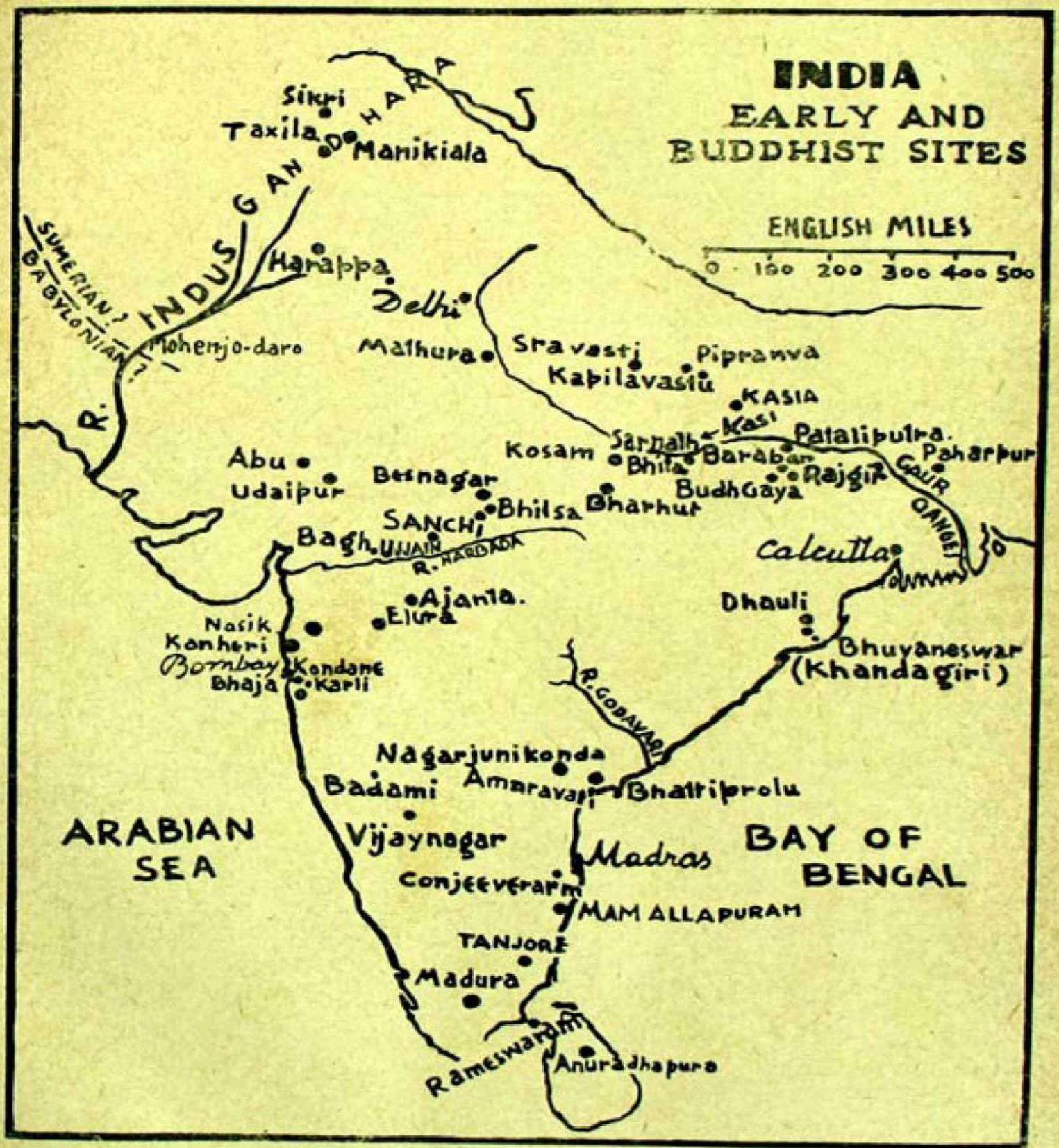
Part I
INDIA AND NEW ORDER



MAP OF ANCIENT INDIA

INDIA AND NEW ORDER

History and Tradition

" India in very early times attained a height and fullness of development hardly reached, and not excelled, by any nation under similar conditions " : observes a close student of history in the Annals of the American Academy of Political Science, May, 1944. Pre-historic India, as a matter of fact, besides high thinking, developed the science and practice of planning prosperous towns and villages. Mohen-jo-Daro and Harappa, situated in the Indus Valley of North Western India, were examples of Indian Town Planning over five thousand years ago. There is no record or trace of such well-ordered town-planning of that remote age in any other part of the world. Their planning arrangements revealed that social economy and sanitation were taken into consideration in addition to other factors. Well-built masonry houses, regular street and elaborate drainage systems which archæological excavations have explored in numerous sites covering a length of over thousand miles between the Arabian Sea and the foot of the Simla Hills, spreading over an area larger than those of contemporary Egypt and Mesopotamia, were among the achievements of the very early Indian Civilization. The principal cities along the Indus, it has been indicated, were the seats of a Centralized Government that combined both secular and religious administration. The *Kshetrapal* (administrator)

ruled the people as the vicegerent of God. Later on, in historic India, a good system of local government through *Panchayats*, *Ayagars*, or associations of local leaders conducted the activities of the Indian village, the unit of social and administrative organization, undisturbed even by dynastic changes.

In Vedic and Brahmanic ages the civilization of India was largely a rural one. With a developed system of agriculture villages had a great influence on civilization and culture. Whereas the words *grama* and *pura* (village) are frequently found in the hymns of the Rig Veda, there is no mention of the word *nagara* (town). In that ancient period the Indo-Aryans derived their living from forests and fields. They were people partly pastoral and partly agricultural. They had as their dwellings reed and bamboo cottages thatched with straws, leaves, branches and barks, supported by conical or pent roofs on bamboo or sal frames. The Ramayana and the Mahabharata, the earlier Puranas, the Jain Prakrit, the Buddhist Jatakas and later on Tamil literature from 1000 B.C. to 1000 A.D., when India built great garden cities, described such civic centres as Ayodhya (Oudh), Indraprastha (Delhi), Prayaga (Allahabad), Kanyakubja (Kanauj), Kapilavastu (Nepal), Kanchipura (Conjeeveram), Srirangam (Trichinopoly), Uragapura (Madura), Mahasthana (Northern Bengal), Gaya, Sankisa, Sravasti, Dhanyakataka (Amaravati), Tamralipti (Tamluk), etc. Those cities and towns of ancient India drew their nourishment from villages. Pataliputra controlled 80000 villages. Villages grew up as self-sufficient republics and maintained the growing prosperity of the villagers in spite of political changes

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through fall of empires. The Village was the unit of administration. Village guilds and home-industrial units remained powerful. Under municipal administration controlled by the State, sanitation and communication maintained high standards. Every one remained engaged in work and able-bodied beggars and vagabonds were punished by law. When there was no work for the farmers in the fields they used to work on irrigation projects and cottage industry. Full-scale employment of labour and careful utilization of all agricultural resources were important features of this rural economy.

The conception of a planned economy is considered to be an innovation brought about by Soviet Russia recently. Though planned economic development has found its fullest expression in Russia, it is not confined to Socialist or Fascist countries only. The entire Indian social order, one should not forget, till the advent of the Britishers, was obviously a Planned Economy that had splendidly functioned for thousands of years, based as it was on sound humanitarian principles. The Vedas have recorded numerous instances of socio-political and economic organisations that were essentially democratic. The Vedic Aryans were divided into classes or tribes called *gramas* (villages). The affairs of the village were conducted by a Council composed of heads of families called *Panchayat*. For the administration of justice there were tribal councils or gatherings called *Sabhas* run by *Sabhasads* chosen from the adult members of the tribes. The internal affairs of a number of tribes or classes which united into a State were managed by a *Samiti*. The *Samiti* used to elect the *Rajan* (king) to lead the people of the State in war and in peace.

After the Vedic Age, with the development of larger States, the masses with whom power rested came to be known as *Ganas* (groups). The *Ganas* organized their *Sanghas* (Republican States) which ruled constitutionally, complying with the wishes of the people. All the members of the community were fully alive to their responsibilities and duties as much as to their rights and privileges. The Government was truly democratic. The Hindu Order covered all phases of life—political, social, religious, cultural and economic—while the Russian experiment is concerned more with the economic sphere. Following the traditions of Chandragupta Maurya's administration, the successive Hindu emperors administered their bureaucratic states with the assistance of provincial Governors, District Magistrates and other officers. Even then the Hindu kingdom was not a despotic government. A Brahman hierarchy always guided the king or the emperor and reminded him of his duties to his subjects. Before the British legislature smashed such corporate organization in India which had functioned as a well-maintained balance of occupations, the country was made up of self-governing villages protected and presided over by *Rajas* (kings) whom the villagers themselves nominated and maintained. 'Sukranitisara' also has mentioned that social security in ancient India was maintained by Village Self-government through village *Panchayat* composed of elected members which performed both executive and judicial services. A group of such autonomous village governments was controlled by a separate council publicly elected. A number of such councils, collaborating with one another, enabled smooth administration of the Central Government.

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Briefly speaking, each village community exercised all the functions of a State as an autonomous political unit. A federation of several communities created a large State the management of which rested on a purely democratic body composed of each village community formed into a unit. All the states, the large federated and the small village, were politically controlled by the Central Government with the king emperor as its president whom the masses of the villagers elected, and to whom they paid customary tributes which enabled the government to undertake large public works of various nature which the smaller states were unable to finance.

In towns and villages there were group organizations belonging to various classes of intellectuals, rulers, craft-guilds, artisans, agriculturists, bankers, merchants, labourers, etc. They worked unhampered in active co-operation for progressive development of their ideals. Equality, independence and democracy were enjoyed by each group functioning under the guidance of the elected leaders. These trade union groups specialised in their particular trades or crafts and economically they were related to other social organizations, a common socio-political bond holding all the groups together irrespective of sectarian, religious and cultural differences.

Rural Life

In historic India, even in India of two hundred years back, villages were considered as arteries which maintained her physical frame. All aspects of Indian corporate life, material and spiritual, commercial and political, evolved and developed in the rural regions of

India. A Himalayan forest village nurtured the cradle of Indo-Aryan civilization. Under the domination of some Occidental ideas and beliefs now that the so-called "progressive" urban activities,—the political, economic, social and civic enterprises,—have spoiled the corporate life of India, have shattered her spiritual soul, and under the domination of Mumford's "Giantism," now that the titanic factories of the relentless anti-social capitalists have sucked the vitality of the suffering masses of humanity, the cry for "Back to the villages," for the decentralization of economy, has agitated the minds of thoughtful Indians. The message of rural Nature has inspired the weary man of to-day. In the opinion of European thinkers also, like Thomas Sharp, "however finely the town may be built with facilities for commercial success and social happiness, it can never completely fulfil man's desire. The more the town is physically successful the more does it revel Man's overtopping Nature. Man can possibly overtop Nature, but he cannot entirely cast her off." Divorced from contact with Nature, denied the refreshing contrast between the beauties of natural forms and those of artificial ones, denied the softening, broadening influences of the spontaneous creations of mother Nature, the townsman loses much that is pre-eminently essential for his real development. The greatest tragedy of modern Indian sociological disruption is the migration of the intellectuals to the urban areas where they enjoy a better standard of living. "Drift from the Land" has been occasioned mainly by economic inequalities between town and village rather than by any deep infatuation for urban amenities and amusements. In the desire to

escape from the town back to Nature, to the village, preservation of the natural amenities of the country side influences one a great deal. They are quite distinct from the provision of good water supply, drainage, communication, market and medical aid. Unless and until the rural life is re-vitalised with its intellectual wealth, its material poverty and moral depravity cannot be wiped out. The regeneration of Indian nation is inextricably bound up with the regeneration of its villages. Scientific planning, therefore, should proceed from the village upwards. Rural India to-day is perplexed with very intricate problems ranging from irrigation and the improvement of primitive methods of cultivation to the liberation of the peasants from the clutches of the 'middle men' profiteers, the uncompromising land lords, the usurers and the dealers. All the problems have to be tackled thoughtfully.

SCIENCE AND INDUSTRY : DRASTIC CHANGES IN MAN'S OUTLOOK

In the earliest stages of the history of civilization, as the old Stone Age, *i.e.*, the Paleolithic Age, with its characteristic rough stone implements, was followed by the New, *i.e.*, the Neolithic with its implements skilfully chipped or polished, varied and artistic, so the earlier and cruder mechanical appliances for the use of the people of the Indus Valley and Magadha, of Mesopotamia and Ur, of Egypt and Greece, of Italy and England, were followed by those of the two great Industrial Ages classified as Paleotechnic and Neotechnic worked out by peoples known as Paleotects and Neotects. To the former order belong the collieries, crude form of

steam engine and many of the European staple manufactures, railways, grain and other markets for commodity, monotonous industrial towns and overcrowded slums with somewhat ill-planned houses in appallingly squalid surroundings. But the Neotects set towards house-building and town-planning with excellent streets as was possible in those days, improved railway and other means of communication, comfortable houses, parks, gardens, memorial monuments, temples, churches, etc., in the quaint manner of the time. Applied science and industry developed mostly in Europe in the Middle Ages. The people then applied their scientific constructive skill to the public conservation instead of the private dissipation of resources. With their gradual development in the last one thousand years, during which time Paleotechnic and Neotechnic industries were evolved, machines swept over human civilization in three successive waves. Steamship, church-clock, steel, electricity, telegraph, and lately ferro-concrete, radio, automobiles, etc., influenced the consecutive developments of Western civilization, and explored newer modes of man's living in the occident and newer methods of building their dwellings in towns and villages. In his remarkable publication styled "Utopia of Garden Cities", Ebenezer Howard has explained the development of the town of the later Industrial Age that was a product of that Neotechnic Order, characterized by Electricity, Hygiene and Art which was achieved by intense social co-operation. The latest invention of Atomic energy, it is anticipated, will revolutionize the technique of Industry, Engineering and Communication. It will cause a technical

upheaval as it will be converted into electricity and employed along the usual channels. Power production will be extremely cheapened by its use. Production of electricity from coal, oil and wood will no longer be essential. Batteries will be developed for operating air-crafts, railway engines, road vehicles and ships. Hand labour will be minimised and the technicians working on the machines will rule certain sections of the people. Rich deposits of thorium and uranium recently discovered in Travancore will be used for generating atomic energy. One ℔ of uranium will generate as much heat as can be done by 1500 tons of coal. There are great possibilities of the application of atomic energy to Industry, Agriculture and Medicine.

INDUSTRIAL REVOLUTION : COLLAPSE OF INDIAN INDUSTRY AND SOCIETY

Not to speak of earlier periods, even under Moslem rule the life of India was chiefly rural. It was not influenced by mechanical contrivance in any very remarkable manner compared to the West of the same period. The social security and economic solidarity of India remained intact till the middle of the eighteenth century. Two distinctly separate utilities for living in Indian towns and rural regions, that are so conspicuous in this age, were inseparable in the past although the degree of closeness in their social and economic relationship has varied in modern times. Garden cities and towns in ancient India were mostly built to house and maintain the agricultural population in the surrounding countryside and to stock and maintain and market country products including food grains,

sheep wool and camel wool called "Yeagar", "Khaddar", etc. The conditions of European countries, before the Industrial Revolution during the last century, were more or less similar to those in India. During the last years of the Revolution there, with the brisk manufacture and distribution of industrial output, new roads had to be constructed and the old ones improved. Canals and inland waterways were excavated. Docks and harbours with store houses were constructed or improved. Railways were introduced. The importance of road system was much reduced thereby. Identical circumstances which caused the formation of earlier community groupings at the junctions of important roads, led to the rapid growth of industrial communities at important railway centres. The Industrial Revolution in Europe, operating from those manufacturing towns, congested then by industrial housing with open sewer between rows of buildings, sunless courts and back to back houses devoid of garden and grass, shattered that sweet relationship between towns and villages.

The Britishers carried out their conquest and settled in this country during the period of the European Industrial Revolution. They developed the then existing system of communication and transport in India. In the course of years as they occupied large tracts of land they had to develop extensively the systems of communication, etc., and ultimately they created and maintained a sound structure of political, administrative and economic unity which had not been possible in pre-British India then governed by numerous Indian rulers most of whom lacked fellow-feeling and unity. Under the British administration India had to

pass through a period of transition and re-adjustment to the new forces that were inconsistent with their corporal existence. Indian indigenous industry had to face the active opposition of the Government and gradually languished for want of Government support. It could not stand competition with the industry imported by the Government itself. Similarly various other organs of the society were affected. In the absence of Government sympathy and support old social institutions with all their pleasant traditional experiences fell miserably into disintegration. This disruption of the country proceeded apace as the twentieth century advanced. The first quarter of the twentieth century saw India functioning as a supplier of raw materials and also as a great market for imported goods. British ships carried iron ores, cotton, jute, etc., from India to England and returned with finished steel and machinery, Manchester made cloth, drugs, alcohol and a host of articles for day to day use in India.

Social Evils of Certain Aspects of Modern Town Planning

With the growth of Industrialization and Materialism in this country, the social and cultural aspects of Indian life have faced destruction. Western methods of town planning have been ill-assimilated by the Indians and ill-applied in developing Indian regions. Their injudicious applications have been responsible for the tragic existence of New Delhi and Jamshedpur. They have made intimate associateship or corporate union of the various classes and institutions, and the healthy collective living of the people impossible. They have

ignored the adjustment of Time and Space. There have been enforced large-scale physical segregations of the various stratas of Indian social life which have been detrimental to the growth of social harmony and national common-wealth. It did not occur in the civic life of ancient India. In the composite towns and villages, technically known as the *Nandyavarta*, grown in the lap of Nature with their indigenous architectural traits, large edifices, middle class dwellings, even cottages, owned by various classes differentiated by birth and profession, stood happily on a solid corporal platform, with their inhabitants united in social welfare, in exactly the same manner as they do now in some of the Indian mofussil towns and villages, although slightly influenced by Western material civilization. There were *mahallas* (sites) jointly occupied by different classes of people in different yet correlated blocks as if they were prototypes of the entire garden-town on small scale. Jaiselmer (Western Rajputana). Gogunda (40 miles from Udaipur) and Avani (22 miles from the gold fields of Kolar, Mysore) are examples. The split came with the abrupt development of Industrial towns. As the housing conditions of the workers became more and more debased the split widened and widened till the wealthy and the middle class people began to live in separate areas. Separate 'Density Zones' were created round about every town. Particular zones were allotted for housing the working classes in crowded *mahallas*; the middle class people were compelled to congregate in some secluded corners of the town with 'C' class and 'D' class quarters humiliating and uncomfortable; other part-way zones were assigned for other classes.

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Each and every group, in many modern towns in India, has been tactfully zoned, deliberately segregated. The social evil accruing therefrom is deplorable. Whenever people of one social or economic group seldom had occasion to contact members of another group, artificial difficulties made their union impossible. Everywhere in almost every town and city of modern India, there have been established provincial demarcations, linguistic divisions, sectarian and communal associations that retard the growth, even destroy the very existence, of national good will. New Delhi is a typical example.

The capital of British India had to be shifted from Calcutta to Delhi at a time when there was considerable unrest in the country and revolutionary activities were determined to destroy the Government. New Delhi was planned on military technique in a manner suitable for sturdy and easy defence. Communication and strategic points were arranged with that end in view. Civic life cannot grow in military atmosphere.

The planning of New Delhi, influenced by the general plan of Washington, has failed to stimulate healthy growth of community life, being most inconvenient to most of the inhabitants and rendering the functioning of their daily vocations too expensive. Space and Time factors, conveyance and transport and socio-economic conditions of the citizens most of whom do not have automobiles have been ignored. Enforced segregations of the Government employees in separate unsocial zones, according to their salaries, have destroyed the spirit of fellow-feeling. Moreover, it has entailed large unnecessary recurring expenses

concerning maintenance of the city thoroughfares covering much more than necessary areas, which could certainly have been saved by good planning. The Secretariat and the Viceregal edifices have been victims of an inconsistently Composite Architectural Order with an incongruous juxtaposition of styles, occidental and oriental, which, when seen as a whole, destroy architectural unity, aesthetic harmony and balance. The language of their architecture does not evoke any noble sentiment. All this has been due to political and cultural subjugation for more than 200 years.

Russian Experiments

Such socio-politico-economic subjugation under the Capitalists was the cause of the Russian Revolutions. The Bolshevic Revolution in the first quarter of the twentieth century liberated the oppressed masses and the Soviet Union guided and protected the poor workers of the world. Lenin and Trotsky led the Revolution for the attainment of "Peace, Law and Bread." It was declared that along with Tsarism would be abolished Capitalism, and the Socialist Society of the free and the equal be ushered in. Thereafter in 1935 democracy was replaced by an one-man dictatorship, under Stalin. Since 1943, however, the last vestiges of fellow-feeling, nay internationalism, have disappeared (?), it is said from Soviet Russia. Not merely in that country did these things happen. Such changes have been going on in other parts of Europe and Asia. Some of the principles of planning and reconstruction, as are being imported into this counury by a group of Indian capitalists, if enacted, will greatly strengthen the grip of

the well-organized union of the capitalists themselves, and weaken the helpless suffering masses comprising the poor and the middle class, however excellent their planning scheme may have been otherwise.

Blessings of Scientific and Technological Discoveries

Science has revolutionized the social and economic life of the people of all nations in this age. Cultural and corporate institutions, civic organizations, every where, have been undergoing radical changes. India has to accept the blessings of modern scientific and technological discoveries and inventions. She must welcome the re-adjustment and re-inforcement of her traditional techniques and sociological principles to enable herself to attain material prosperity quickly in these days of restricted opportunities. Yet her sons cannot profit by discarding wholesale the heritage of their enviable past and the elements of their sound organizations, urban and rural, material and spiritual, which conformed to the physical, climatic and cultural needs of past India, throughout the ages of her long history, and which brought for the country plenty of food, plenty of resources, excellent health, creative brain, fabulous wealth, economic prosperity and cultural achievements that the foreign travellers beautifully recorded in their thoughtful compilations. Pataliputra, the capital of Magadha empire, was then considered to be the greatest city with all its architectural grandeur and rational planning second to none in the world of that age. Towns and villages in these days were planned scientifically not only on socio-economic considerations,

climatic and geological conditions, and resources then available, but strictly on astronomical, astrological, meteorological and sanitary calculations. They were founded on soils carefully tested in conformity with the regulations laid down in the 'Vastu-Shastras.' In Kautilya's 'Artha-Shastra' of fourth century B.C., elaborate rules are laid down for town-planning. 'Agni Purana' has also dwelt upon the same. The town planners in ancient India were architects. They composed standard works on the subject like the 'Manasara', the 'Mayamata', the 'Vastu Chandrika', the 'Silparatna', the 'Sukraniti', etc. The 'Silpa-Shastra' was a notable compilation on Town Planning. Drawings for various types of plans such as 'Swastika', 'Padmika,' 'Sarvatobhadra' 'Nandyavartya', 'Karmuka', 'Chaturmukha', etc., are to be found in the pages of the 'Manasara'. Their judicious development should be attempted by experts under Indian Universities. Researches should be made in connection with architectural engineering as well as the astral and technical methods of rural and urban planning adopted in India in past ages.

Astral Injunction on Indian Planning

Indian towns and villages of the historic age, till the nineteenth century, were planned on the basis of astronomical, astrological and meteorological calculations as there is an organic correlationship between the astral system and the system of human life. The nature of the soil of different places varies according to different geographic latitudes and longitudes. The terrestrial field of cosmic waves is affected by variations caused by interference phenomena due to various astral radiations consequent

upon the rotation and revolution of the earth. Thus is established a connection between the pattern of living in a place and variations in the field of cosmic waves brought about by the nature of the soil of the place. The oscillatory equilibrium of the cells composing the brain and nervous system is modified when cosmic radiations vary according to local conditions. Human feelings are greatly influenced by certain variations in the radiations emitted by the soils. Astronomy helps the planning architect in selecting a suitable site for a town and saving the dwellers from enormous losses in person and property. *Rahu* and *Ketu*, *Amavasya* and *Purnima*, Saturn and Mercury regulate all aspects of human life, dietary and medicine. Since the days of Varaha Mihira, about 1500 years ago, Indian astrologers have observed the principles governing weather, storms, earthquakes, epidemics, etc. A knowledge of the same was absolutely essential for a town-planning architect. The growth of crops is subjected to astral influences. Astrology helps to avert economic crisis and ensures a sound food policy. In ancient times Indian astrologers used to predict epidemics, as they do now, from studying planetary conjunctions and guided precautionary measures to counteract danger. Proper attention to the phenomena of planetary conjunctions improved the sanitary condition and health of the land and the people. The 'Satapatha Brahmana' (Veda) dwelt on the science of Astronomy and discovered that the Sun was the central force of the solar system. 'Vedanga' endowed the people with a knowledge of Time and Space who ultimately sought to comprehend the Laws of Nature in association with the Laws of Man's

Life. The gulf that yawns between men on the one side and the planets and stars on the other is bridged by astrology.

Some of the researches on ancient Indian chronology conducted recently reveal that the Vedic and post-Vedic classical literatures are full of astronomical references which, stripped of allegory and anecdote, throw definite light on the origins of Indian thought and civilization. The astronomical data indicated in the Mahabharata and examination of the traditions connected with it suggest that the Vedic Hindus lived in India, and Kurukshetra was the centre of the Vedic culture. Other conclusions are that the earliest known Aryan colonization of India began about 3900 B.C., and the Sanskrit literature known as the 'Brahmanas' began to be formed about 3550 B. C. Allied researches may be expected to throw a new light in exploring the science of planning the life of the ancient Hindus. Hindu 'Dharma Shastras' deal not only with the health and wealth of the people, habitation and sanitation, but also their manners and customs, laws and constitutions, eugenics, jurisprudence, dietetics, economics and politics. Every branch of human science was scrupulously treated by the 'shastras.' In Sanskrit the Science of Architecture is termed Sthapatya-Veda and along with Ayurveda, Dhanurveda and Gandharba-Veda, is, therefore, an integral part of Vedic knowledge itself. Indian priests used to cultivate experimental and inductive Sciences, surgery and medicine, astronomy and astrology.

Nature was never overtopped in planning the regional developments in ancient India under

the regulations of 'Sukracharyya' and should not necessarily be overtopped in the days to come. National Planning in India harmonised with the realm of Nature through astronomy and philosophy, arts and religion, particularly in the days of the Buddhist and Gupta emperors. Professor Patrick Geddes in his introduction to the valuable publication on "Town Planning in Ancient India" by Dr. B. B. Dutt, has testified to the evidence of a planned, organised, orderly life led by all sections of the people then dwelling in Indian villages, towns and cities alike. He has stated "how such communities have been truly educated, in religion and philosophy, in literature and art, and these with many varied flowers, of which the few that remain are evidence of the many that have been lost." In his "Ancient and Mediaeval Indian Architecture" E. B. Havell observed : "the most advanced science of Europe has not yet improved upon the principles of the planning of garden cities of India based upon the Indian village plan as a unit." Valmiki, Kalidas, Buddhadatta and other classical poets of ancient India have recorded enthusiastic descriptions of magnificent cities and towns in those days that reflected national civic consciousness in all its purity and inspiring grandeur.

Planning throughout the Ages in Different Countries

Town Planning has been practised by many nations in many countries for many centuries. Geographical situations, besides living and economic facilities, influenced the origin and growth of most of the earlier towns in India and abroad. The towns were

also largely influenced by the then existing local means of transport. The primitive foot tracks in Central Asia and those across the Himalayan ranges, as well as the well-laid military roads built by the great Central American Maya Civilization and those of Imperial Rome, followed Geological features. Crude methods of primitive engineering enabled construction of quaint bridges for crossing rivers and ravines. Wherever a high land,—well-drained, healthy and capable of defence,—existed near a navigable stream, it afforded a suitable site for migrators to settle on and conduct their vocations and regional trade, after building there a fortified camp for defence against attacks. With the prosperity of the settlers, castles and citadels were added. People of adjoining rural areas flocked there to settle in those fortified areas, causing the formation of a town thereby.

Close-packed Mastabeh tombs of the great Pyramid Age, that housed the dead nobles and members of the lesser order of the royal families along the valley of the Nile, were laid out in parallel rows with streets like those of a modern American village. The Assyrians and Babylonians built rectangular towns with wide streets and rectangular building plots. According to Herodotus the ancient city of Babylon was "foursquare with the river Euphrates running through its midst", all the streets running straight, parallel or at right angles to one another. Even in Egypt and in Carthage, remains have been found of similar 'grid-iron' plans. Mayan and Hittite cities of Central America and Asia Minor disappeared with their great civilizations long ago. American Universities have been carrying on extensive

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archaeological excavations to trace the former. Enclosed by cyclopean walls and gates most cities in ancient Greece were built at some distance from the sea in order to avoid attacks by pirates. Leading from some of those gates there were covered galleries or passages formed in the thicknesses of the walls with roofs composed of large stones inclined towards one another, forming acute angles by their junctions, resembling the gallery in the great pyramid. In the remains of Mycenae there stood a gate covered by a stone lintel 9′ high by 13′ wide, upon which was engraved a bas-relief with figures of two lions. Between them was carved a small column with a capital on which their forelegs rested. This work may be considered as the first attempt of Grecian art. Prehistoric Greek cities were very irregular in shape. But towards the end of the fifth century B. C. towns were laid with streets at right angles to one another. The age of Alexander the Great was reputed for the planning of Alexandria and Priene that vindicated a high stage of civic development. The houses in Priene usually occupied a site about 80′ × 60′, the principal rooms grouped round a court yard like those in Pompeii. An Ionian market was square in form. It had porticos on all sides. It was placed in the heart of the rectangular city, and about it the entire town was cut up into square blocks of uniform size by straight streets crossing one another at right angles, running through the city from wall to wall. The Gol Market in the clerks' residential area in New Delhi reminds one of an Ionian Market, the adjoining streets, in the case of Delhi, being slightly modified in general arrangement.

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Greek and Roman towns of the fifth century B. C. with rectangular street systems included Piraeus, temples and theatres. The Greek architect Hippodamus of Meteus was responsible for certain structures. Timgad was founded by the Roman emperor Trajan, 100 A.D., in chess board pattern, with 15′ wide streets and 70′ square blocks to accommodate temple, library, piazza, forum, bath and theatre. Gerasa, 150 A.D., a walled town with two main gates and streets intersecting one another at right angles, was dominated by the temple of the Sun and maintained basilicas, baths and theatres. Ancient Greek cities contained no gardens except clumps of trees or shrubs in their inner courts. Open spaces and gardens were almost unknown. The Greeks were responsible for the planned township enclosed by a wall, about one mile long, set in the midst of fields and woods.

Those ancient cities of the West together with certain cities of the East including Angkor and Ayuthia, Mison (Champa), Prambanam, Pulastipura, Pagan and Anuradhapura, besides cities of Iran and Khotan, Bactria and Turfan, were in respect of physical planning the forerunners of the cities built afterwards at such later period as the eighteenth and nineteenth centuries. Many of them were planned in rectangular chess board pattern with wide parallel streets cutting one another at right angles, technically known in India as '*prastara*,' following four cardinal directions. A diagonal street like the one mentioned by Sewell as '*pan-supari-bazar*' street of Vijaynagar was but seldom used in ancient Indian town-planning. But the civic ideals of those Indian cities differed considerably. They had as their

civic centres palaces or places of worship with imperial edifices adjoining. Their usually 50′ to 80′ wide streets laid at right angles to one another enabled free and easy movement of men, horses, elephants and vehicles. The '*Rathamargas*,' *i.e.*, streets for chariots and other vehicles were paved with blocks of stone. Less wide streets and small lanes including shopping alleys and foot tracks, connected business and residential areas. There were strong gates with iron-plated doors in massive masonry structures with towers or '*gopurams*' across public thoroughfares which were kept open in day time and closed at night. Even lanes and byelanes were secured with strong doors.

The cities in ancient Greece and Italy were fortified by massive walls in order to resist invading armies. Such fortified townships are seen in Paris, Sparta, Rome, Florence, Vienna, Cologne. Identical socio-political problems compelled ancient towns in India and the west to provide strong fortifications and wide, deep trenches.

Pre-historic Mohen-jo-Daro and Harappa were fortified by thick-walled citadels with barracks for soldiers, workmen's lines, working floors, granaries, bakeries and breweries, like an organised cantonment with planned communication, transport, sanitation and social service units, both overlooking the mighty rivers of the region. Ayodhya (Oudh) was laid out in four squares, on the right bank of the river Saraju, intersected by 180′ wide roads, straight and picturesque, having flower belts on either side. It was defended by mighty battlements, titanic towers and immense ditches. Outside the battlements and ditches that surrounded the famous city mentioned in the great Indian epic

Ramayana, there were patches of forests and agricultural fields with peaceful hermitages of sages, seers and philosophers. At the centres of many Indian towns and cities royal edifices were seen. The four principal streets in the city proper radiated from the centre and terminated at four city gates. Rajagriha, the capital of Magadha, was designed and directed by a Brahmin planning architect, named Mahagovinda, over 2,500 years ago, after the principles of advanced town-planning which were further developed by Chanakya the Kautilya in the following age, with excellent roads, drains of pucca masonry, lofty palaces and soaring edifices. Portion of the royal road, known to-day as 'Jarasandha Road,' remains yet in good condition. There were arrangements for heating and cooling the royal chambers in different seasons.

The recent excavation at an ancient site two miles to the east of Bhuvaneswar in Orissa has revealed the remains of a fort, 2,100 years old, in the form of a square, each side measuring about three-quarters of a mile, enclosed by a rampart of clay with a strong coating of laterite gravel 4′ thick, 25′ high, with two large and two small gateways on each side. The large gates were flanked by massive rectangular towers of large size laterite blocks. The fort has been identified with Sisupalgarh. It is as usual surrounded by a moat. It contained a type of town, symmetrically laid out, after the town-planning principles mentioned in the 'Arthashastra' of Kautilya, and had a pillared hall towards its centre. It is suggested that the town was the historic capital of the Kalinga empire during Kharvela's reign, although not yet proved conclusively.

In historic India the cities of Baranasi, Ujjaini, Pataliputra, Gaur (in North Bengal), Anhilwara, Devagiri, Dwarsamudra, Ajmer, Kailawara, Conjeeveram, Srirangam, Jaipur and certain other towns developed continuously and steadily for centuries, their growth in later and modern times extending far beyond their old fortifications. In later ages, as the cities and towns grew in size and area, their old fortifications ceased to exist. Forts and citadels were built in or adjacent to them. Certain temples and monastic establishments in mediaeval and later India were so developed as to serve the special purpose of a fortress each.

INDIAN TOWN AND VILLAGE : INDIAN LIFE THEN

In the Science Supplement of the New York Times, November 22, 1931, Sir Arthur Keith stated : "We believed that down to about 1200 years before the birth of Christ the dark-skinned Dravidian natives of India were uncivilized, living after the manner of Jungle peoples.....The discoveries made in the north-western parts of India, particularly in the valley of the Indus, have revolutionized our conception of the early history of India. Sir John Marshall has exposed a succession of buried cities—the oldest of which was already in existence in the fourth millenium B.C. The official estimate for the beginning of the city is 3300 B.C.—a date which is memorable because it was then that the First Dynasty of the Pharaohs was established in Egypt.

We are surprised to find that more than 5000 years ago India had cities of any kind and stand amazed as we grasp the details of the life led by these ancient

citizens, especially as we begin to realise that their mode of living was so like that which we city-dwellers still lead. Nay, until this "Mound of the Dead"—Mohen-jo-Daro—was explored on the western bank of the Indus we had no suspicion that great solidly-built houses, grouped along wide streets and narrow lanes, existed anywhere in the world some 5000 years ago. Certainly the equal of Mohen-jo-Daro has not yet been uncovered in the older sites of either Mesopotamia or Egypt."

After consistent excavations for several years the Government of India discontinued the profitable exploration. The late R. D. Banerjee, Archæological Superintendent, who discovered the site of Mohen-jo-Daro and his successors could not carry their spades much lower. Could they be allowed to excavate still deeper trenches they could, in the opinion of Keith, discover earlier civilization and earlier town-planning, thousands of years earlier, which steadily developed to the great Mohen-jo-Daro now lying unearthed. From the materials unearthed so far in the valley of the Indus it can be assumed that (1) Harappa and Mohen-jo-Daro contain abundant remnants of the civilization of the Chaleolithic age and (2) India had one well-ordered temple establishment five thousand years ago. As it appears, the civilization of the Valley maintained its continuity with the subsequent periods in Indian history in the use of '*Swastika*' and '*Nandipada*' symbols and in the traditional designing of the terra-cottas and ladies' ornaments. The mythological devices on the amulets provided the source of the subsequent religious beliefs and ideas, and they inspired the forms

of the divinities that developed in India in subsequent historic ages. Further excavation may conclusively prove that a remarkable religious order dominated the life of those people. Already inscriptions have been found in the region which record pre-historic phases of the *Siva* cult there. Both the Supreme God and Mother Goddess were worshipped. Statuettes of the Mother have been found in abundance. They were often enshrined in the niches on walls.

The Indus Valley had a heavier rainfall then. It was more watered then by the Indus and the Mihran rivers which flowed there till 600 years ago and it was more wooded than now. Heavier rainfall has been accounted from the use of burnt bricks for the exterior wall surfaces exposed to rain and of the sun-dried ones for the interior. Existence of elaborate drainage system also indicates heavier rainfall. That the region contained dense forests has been conjectured by the seals showing forest animals. Excavations in the mounds (20′ to 70′ high) have exposed 13′ to 30′ wide main streets facing the four cardinal directions with public buildings and private dwelling houses, shrines, public baths, stores, etc., on either sides. 4′ to 7′ wide lanes divided the blocks of houses, *i.e.*, wards. The striking regularity of the different wards and the systematic alignment of the streets and lanes testify to what a stage of advancement the technique of the town-planning reached then. The houses vary from the smallest with two rooms to a palace with 85′ frontage and 97′ depth, containing a wide entrance hall and a door fixed with stone sockets, a porter's platform, a 32′ square courtyard surrounded by double-storeyed chambers brick-floored. Every house

had water supply from its own well, had its own kitchen, bath room and privy. Vertical drains of terracotta pipes connected the top floor privies with the earthen ware vessels sunk beneath the courtyard pavements. House drains discharged into street drains which, in turn, flowed into huge storm-water drains running underground and covered by slabs of lime stone. The drains had well-arranged soak-pits and sediment-pits. One 90′ square hall has been unearthed the roof of which was supported by 20 heavy masonry pillars. That certain houses contained wooden structures in their first floors has been indicated by charcoals and ashes found in the excavated trenches. A remarkable achievement was the great Bath with several annexes, consisting of (*a*) an open quadrangle with verandahs backed by galleries, one *hamam* for hot-air bath and subsidiary rooms on all sides; (*b*) the main Bath 39′×23′×8′ deep constructed in the middle of the quadrangle with masonry flights of steps at the ends; (*c*) masonry wells which used to fill the Bath; (*d*) an upper storey of mber which the charcoal and ash point out. Hydraulic and sanitary engineering skill was displayed by the architect in tackling the problem of making the foundation and side walls resist the pressure and thrust of heavy bulky water, and of making the surfaces absolutely water-proof by the application of gypsum mortar and bitumen plaster brought from neighbouring hills.

The people lived principally by agriculture and trade. They domesticated wild animals including elephants and horses. Gold, silver, copper, tin, bronze and lead were used for domestic purposes.

Alabaster was used for lattice screens, vessels and statues. Steatite was used in making seals and statuettes, and yellow marble of Jaiselmer in statues and *lingam* (phallic) images. Costly stones including rock-crystal, haematite, carnelian, jasper and agate were used for artistic beads and ornaments. Green amazon stone was brought from the Nilgiris, lapis lazuli from Badakshan, turquoise from Khorasan and jadeite from Eastern Turkistan and Tibet. Bone, ivory, shell and faience were used for works of fine art. Shell came from coasts of the Indian Ocean, the Persian Gulf and the Red Sea. Textiles were made of wool and cotton then unknown elsewhere. *Shawls* (wrapper) with fantastic symbols enriched peoples' dress. A specimen of such a *shawl* is found carved in the body of the famous stone image of the '*yogi*' (hermit) with meditative pose discovered in Harappa. Bronze figures of dancing girls with well-dressed hair testify to the excellence attained by ancient Indian art. Ladies' ornaments including bracelets, necklaces, hair-pins, etc., displayed taste, sobriety and refinement. Few almost similar ornaments, still used by orthodox Hindu ladies in India, decorate the images of *Durga*. Painted terracotta vessels and utensils have remained unrivalled.

The arms and utensils of stone used side by side with those of copper and bronze prove that the Indus Civilization belonged to the Chaleolithic Age. There is also a still earlier stratum of civilization traced in Sind in numerous Neolithic cairns, burrows, flint flakes, etc.

The religion of the people adhered to the worship of (1) the Mother Goddess (*Sakti*), images of which have been found in numerous houses; (2) the Father God

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(*Purusha*, *i.e.*, "Supreme Being" mentioned in the Rig Veda)—probable ancestor of *Siva*; (3) semi-human totemic deities; (4) trees symbolizing Nature; (5) *Lingam* (phallus) and *Yoni* (female organ) symbols and (6) charms and amulets to guard against evil spirits.

According to R. P. Chanda the standing four-armed figures found among the signs of the Indus script was that of a deity which later on came to be known as the four-armed Hindu Gods—*Brahma*, *Vishnu* and *Siva*. Another standing deity with a bull in the foreground that figured on certain seals found there, was the fore-runner of the *Rishabha* of the Jain pantheon. The nude female figure seen between two branches of a 'pipal' tree worshipped by seven ministrants, which another seal shows, formed the source of a religious tradition that subsequently inspired the design of the well-known Bharhut sculpture of *Yakshi*, representing the spirit of the Forest, holding a twig of a *champaka* tree in her two hands. All these go to suggest that a religious fervour pervaded through successive ages in the history of Hindu Civilization. The Indus Civilization evolved a script based on pictorial signs to record concepts and sounds. Before any other country the Indus Valley developed spinning and weaving. It painted beautiful pottery and ceramic wares like those of the ancient Egyptians and American Red Indians.

The anthropological remains so far unearthed in the region account for four ethnic types: (1) Proto-Austroloid represented by present day Kols, Bhils, Mundas, Santals and Savaras; (2) Mediterranean represented by present day long-headed Hindusthanis; (3) Mongoloid and (4) Alpine represented by modern broad-

headed Bengalis, Marathas and Gujratis. The first type belonged to India, the second came from the Southern Coast of Europe, the third from Eastern Asia and the fourth from Western Asia. The present Brahuis in Baluchistan can claim the remains of Mohen-jo-Daro as the work of their ancestors who had mingled the cultures of Mesopotamia, Asia Minor and the Eastern Mediterranean with that of the Indus Valley. This region of India then had cultural and commercial intercourse with contemporary Egypt, Crete, Sumer and Elamite. A higher standard of civic life and amenities with a higher level of accomplishment in glyptic art and a higher form of religion, than those of contemporary nations, were enjoyed by the Indians. "The Maize-civilization of Central America could not attain the level of the wheat, barley and rice-civilization of the old world. On these grounds, India can be considered as the very cradle of Civilization."—J. B. S. Haldane's "Inequality of Man", page 46.

This national planning of the Valley, based on physical survey with well-laid roads, underground drains with bends, conduits and man-holes, advanced irrigation and sanitation, considered use of well-burnt bricks and tiles of various shapes and sizes, was not only superior to that of any other contemporary civilization of other climes including Chaldea and Egypt, but it has surprised the best municipal administration of the West to-day. Another very striking feature the author noted, which does not seem to be known to the Archæological Department, was the excellent principle adopted by the planning-architect of Mohen-jo-Daro in laying bricks in masonry walls with headers and stretchers and

half bricks in a manner almost similar to what is to-day known as "English Bond" the function of which is to distribute the superincumbent weight over a large length of the foundation footing. The water-proof plaster that has become a necessity in modern sanitation was very judiciously specified and applied by him. The famous Bath supports this statement. Louvre window (*jhilmil*) carved out of stone slab seems to be used in the chamber of the bather. Replica of such louvre (later Venetian shutter), is noticed in the Gotamiputra cave temple of Nasik of 2000 years ago.

The excavations now being conducted by the Department of Archæology of the Government of Indian Union near Pondicherry and in places in Mysore and Orissan provinces will, it is hoped, stratify and assess the yet unidentified cultures of the early Vedic, Brahmanical, Upanishadic and Buddhistic ages and, thereby, bridge the wide gap between the Indus civilization on the one hand and the early historical Magadha civilization of the fifth century B.C. on the other.

At the dawn of the historical age a town or village in India assigned each of its community groups to separate section and subsection of '*Varnasramdharma*' (caste system) including trade and craft guilds. Most of the towns and villages were dominated by one centrally situated temple as civic centre at the crossing where four roads met, mostly in the midst of a grove, at an easy distance from a spacious water tank or well. The temple had its usual '*mandapa*' (assembly hall), '*vedika*' (platform) for debates, religious ministrations and discourses, rest houses, market, dispensary, etc. One special hall was erected for the

exclusive use of ascetics. Some of the structures were built with bamboo, sal, bark, leaf, straw and mud. Under the deep shadow of the spreading Council Tree was built a platform or pavilion on which the *panchayat* (Assembly) sat to transact civic affairs. At sunset, also on ceremonial occasions, the people of the town and adjoining villages, of all castes and sub-castes, used to meet there and mix freely with one another in a spirit of friendliness, strengthening the bonds of social and corporate life. The possible evil consequences of segregating the castes and sub-castes in detached wards where they were liable to develop anti-social habits and customs and ideals through the otherwise beneficent guild system maintained by Hindu Sociology (*varnas--ramdharma*) was successfully retarded thereby. History bears witness that in the Vedic, Smartic, Pauranic, and Buddhistic times, religious conventions of the sages were held in the precincts of temples. Stalls for the sale of local produces remained open for intending purchasers. Branches of freshly cut trees with bunches and garlands of flowers were planted in front of the stalls and adjoining lands were watered often times. Barter system and exchange of *karsapanas* (shell) were in force for such transactions. The town-planning as well as the civic and social life of Rajagriha and Pataliputra have been treated in "Magadha Architecture and Culture" written by the present author and published by the University of Calcutta. Almost all ancient Indian cities and towns of significance were more or less garden cities.

Such socio-spiritual establishments the author has personally met with in many regions in the course of his study tours in India and abroad for about forty years.

There the lowest meets on the same platform with the highest and worships the deity standing abreast. In rural Bengal, rural Burma and China there are still many such religious organisations reminiscent of the past golden days. Special mention may be made of the primitive hill tribes and jungle folks gathering at the precincts of their rude mud-hut-temples nestling among the bright foliage of their peaceful hamlets with their simple unsophisticated life mysterious and religious.

The country being full of forests, in those days, wood was, generally, more utilised than brick in house-building. In the desert tracts of Sind and North Western Rajputana and in the Punjab sun-dried or burnt bricks were and are used exclusively for structural purposes. Five hundred years before the Christian era stone architecture was introduced in many Indian cities. The event of life in an ancient Indian city of 200 B.C. to 300 A.D. can be studied in the archaeological bas-reliefs in Bharhut and Sanchi, Mathura and Nasik, Karle and Amaravati. The life illustrated in the fresco of Ajanta was 500 years later. The Sanskrit drama 'Mrichchakatika' by Sudraka has given a very faithful picture of Indian civic and social life of two thousand years ago.

Tradition prohibited the insertion of doors and windows in walls flanking the main thoroughfares in ancient Indian towns, excepting those behind the *jharokas i.e.*, balconies in upper floors. It was faithfully complied with in constructing buildings of such important towns as Mohen-jo-Daro and Rajagriha. Even one hundred years old palaces in Bikaner and elsewhere followed the same common regulations. To

modern taste, of course, this enforcement appears to be barbarous. But those who have experience of sand-dunes in desert regions can realise the vital usefulness of such a regulation. Sanitation and ventilation were never sacrificed thereby. Both in summer and winter months it was comfortable to dwell in semidark chambers with small openings above man's height termed as *gabakshas*. The people then were very healthy, strong, active and energetic. Numerous excellent planning and sanitary regulations there were, and building bye-laws. 'Viswakarmaprakasa' and other treatises recorded them. Improvement to and expansion of existing cities were dealt with. Dwarka, Indraprastha (Delhi), Ujjaini, Vijaynagar, Kasi, Srirangam and Lakshanavati (Gaur) underwent such development. Zoning and alignment, centralisation, migratory expansion, congestion, reclamation, orientation, distribution of public buildings, allocation of open spaces, parks, tanks, orchards and reservoirs, landscapes, roads and minor thoroughfares, raised foot-paths, tree planting and all that was essential for healthy, prosperous, clean living were treated in more or less exhaustive manner. The need for and character of *Sakha Nagar*, *i.e.*, satellite town, were explained. Certain municipal regulation disallowed even the royal chariots to enter into particular streets. No door shutter would open on the main road, it was regulated.

An idea of a group of structures in uniform architectural style is obtainable from a view of Plate No. 1 concerning conjectural restoration of the ancient city of Kusinagara (*circa* B.C. 500) illustrating the splendid publication by Mr. Percy Brown on "Indian Architecture."

The book illustrates also conjectural reconstruction of several notable towns and monuments existing in ancient and mediaeval India. Ideas which inspired the Indian architects to formulate various regional architectural styles should be researched from important documentary evidences in contemporary archaeological, *i.e.*, architectural remains side by side with the allusions, references and descriptions found in the Mahabharata, Ramayana, Puranas, Arthasastra of Kautilya, Kamasutra of Vatsayana, Natyasastra of Bharata, besides Jain and Buddhist literatures, Tamil and Kanarese texts, and ancient Indian dramas including those of Sudraka, Bhasa and Kalidasa. Present Universities of Travancore, Mysore, Allahabad and Madras are carrying on researches on these lines. Dr. A. K. Coomaraswamy dwelt on the subject and after co-ordinating materials and facts obtained from excavations and literature, compiled his monumental work styled "Early Indian Architecture". In the case of planning a town or village the mystic diagrams, following the technique of Folk-planning, divided it into prescribed numbers of plots and assigned the same to various presiding deities mentioned below.

Residential buildings, standardised for the use of community groups with essential commodities, were planned and specified in various types and styles, with varied forms, dimensions, storeys and heights, in harmony with the dominating texture and colour of the structures and environments, and expressing the personalities of and purposes behind them. The plans and designs strictly followed the grammar and composition of the language of the regional architecture. Local building materials endowed the cities and towns

with peculiarities and varieties of colour and workmanship and with individual characters. Civic and cultural life and soul of the cities scintillated through the structural forms. Existing ancient Indian cities are much more convincing records of the evolution and progress of Indian civilization than the edicts, coins and copper plates. The heights of the buildings which varied from one to eleven storeys, were regulated by ' Vastûshastras '. The royal palaces were to be eleven-storeyed and not higher than 150 feet overall. The superstructures of ordinary dwelling houses were either of wood or brick or both combined. They were mostly treated both externally and internally with fine stucco plaster brilliantly painted with fantastic figures. The house-compound contained one vegetable garden with orchards and flowers. Conduits of water irrigated the garden.

How zealously was architectural unity maintained in those days could be studied from the descriptions and illustrations of cities like Vijaynagar and Jaipur. Robert Sewell published his thrilling account of Vijaynagar in his " Forgotten Empire " which could wisely be styled as Never to be Forgotten Empire. The description of the magnificent and immense city by the famous Portuguese traveller, Domingo Paes, deserves repeated reading. The Italian traveller, Nicolo, who visited Vijaynagar 500 years ago mentioned that its circumference was 60 miles and its walls were carried up to the mountains. Towns and villages then were clean. They provided parks, squares, gardens and tanks. The tanks with high embankments overgrown with majestic trees and groves afforded the

passers-by with cool, convenient resting places. Each town or village was the proud possessor of either a temple, or a *vihara* (educational unit) or a *sabha-griha* (national hall), or a market place, as its civic centre. Streets and wards were assigned and denominated to communal or spiritual symbols. Deities such as Vishnu, Siva, Rudra, Indra, Jayanta, Lakshmi, Nrisinha, Naga, Diti, Aditi, Kal Bhairava, Kartikeya, Isana, Ganesa, Manasa, Bhadrakali and Chamunda, from their respective temples or shrines, protected the blocks and wards of the city, town and important village that were planned in compliance with astronomical and astrological directives. The entrance gates of the city, town and village were guarded by Surya, Agni, Indra and Hanumanta. The inmates were spiritually united. Then the heart and intellect of the nation proceeded on parallel lines.

Influence of River

A river basin has mainly been responsible for shaping many a town and city. The capitals of memorable civilizations generally originated and developed in river valleys. For centuries and centuries the upper and lower valleys of the Nile maintained one of the greatest mines of history and civilization. The Indus valley nourished Mohen-jo-Daro culture. Takshasila (Taxila) grew up in the valley of a mighty river girdling a spur of the Himalayas. Cairo and Alexandria, Rome and Paris were nourished by the Nile, the Tiber and the Seine. A great river basin draining an area of 40,600 square miles and now feeding the Tennessey Valley of the United States of America, has engaged the attention

of the world. The main stretch of the river measures 650 miles. With the development of a tract at the mouth of a navigable river, or at the confluence of important water courses, there almost always arose a city. In India and Eastern Asia, Ayodhya (Oudh), Pataliputra (Patna), Prayag (Allahabad), Kasi (Benares), Amaravati, Srirangapattan (Seringapatam), Agra, Delhi, Bezwada, Pegu, Rangoon, Pagan, Prome, Pekin and Tokio are notable examples. New York has developed at the mouth of the Hudson. Pittsburg grew at the junction of the Allegheny and the Monogahela rivers. Sea side towns such as Somnath, Bhrigukachcha (Broach), Visakhapattan (Vizigapatam), Tamralipti (Tamluk) flourished in ancient India. Ocean Liners in this age have influenced the building of cities with harbours. Aerial routes of to-morrow will reclaim so far inaccessible regions in the deserts and on mountain crests.

MEDIAEVAL TOWNS WITH IRREGULAR OUTLINE

Most of the European and Indian towns belonging to the Middle Ages grew up without any conscious plan. Winding streets flanked by houses with picturesque tiled roofs and gables or quaint turrets and dromers and in the case of India those with shadowing balconies (*jharokas*)and corner finials (*Bunglis*), had a charm of their own, the works of the craftsmen attracting the admiring gaze of the onlookers even to-day. The fascinations of those old-world towns and villages lay principally in the haphazard grouping of buildings, huddling round some quaint old market-place, like those of Ujjaini, Indore, Gondal and Baranasi. The market place formed the lung of the

village or town, The irregular streets, dreamy *mahallas* (residential blocks) and bustling *chawks* (market quarters) were overshadowed by some grey old minsters with the blended tints of mosses, lichens and other parasitic vegetation on their exterior wall surfaces and mouldings, or by stone temples, or mosques.

In the Kathiawad district of Bombay Presidency and elsewhere including Rajputana there existed, and still exist, towns with narrow winding streets, paved by flag stones or boulders, leading to the *chawks* (market places), through striking entrace gates strengthened with wooden and iron doors, flanked by massive structures that contained rows of wooden or stone balconies with *jali* screens, finely carved. Such overhanging balconies were faithful replicas of those ancient ones which adorned the structures depicted in the bas-reliefs at Bharhut, Sanchi, Mathura and Amaravati. Ladies standing or sitting on the balconies used to watch processions passing along the streets below. Along the streets, in the ground floors of those massive edifices belonging to the *seths* (wealthy men), were assigned stables for draught cattles like buffalos and bullocks. Street doors (generally one door for each building) were mostly kept shut. Street traffic was mostly pedestrian. Palanquins, chariots, carts and horses served the vehicular traffic. *Deepa-stambhas, i.e.,* oil-lamp-posts lightened the town at night. In moon-lit nights they were not used. On festive occasions *deepavriksha* with numerous oil-lamps were erected at regular intervals throughout the town.

In planning many of the Post-Mediaeval German towns, open spaces were left so as to supplement future

items. In the course of improving certain old towns in Germany the existing boundary walls were demolished to allow boulevards to enclose the town areas. Public gardens and parks were grouped round particular inner blocks. Grass belts with borders of flowery creepers and plants were provided along either side of the roads.

RENAISSANCE TOWN PLANNING

The historic upheaval of learning following the invention of the printing press brought about a vast extension of universities and educational centres all over Europe. With the same arose an extensive knowledge and appreciation of the classical architecture of Greece and Italy. This in its turn led to the adoption of classical lay-out plans for the new palaces, colleges, ecclesiastical and civic structures under the guidance of Inigo Jones and other architects. Sir Cristopher Wren's edifices at Hampton Court Palace and Greenwich Hospital, the educational structures of Oxford and Cambridge, each of which was the combined work of generations of architects, testified to the achievements of the period.

French Renaissance caused the replanning and development of the more important zones of Paris by laying out wide boulevards through the slum areas created by Industry. It connected the heart of Paris with the Central Railway Station and the then existing plazas. Those extensive boulevards added to the beauty and charm of the much earlier majestic plazas and gardens laid out in the seventeenth century.

In his "City Planning" Harold MacLean Lewis has very logically explained how through a failure to

adopt Sir Cristopher Wren's plan for rebuilding Central London, London lost the opportunity to achieve new radial thoroughfares which would be extremely useful to-day. Wren's St. Paul's Cathedral, London, ranking among the finest Renaissance Cathedrals in Europe, reveals architectural grandeur in a charming environment. Sir Cristopher Wren and John Evelyn prepared excellent plans for the rebuilding of London. The rights of Capitalists did not allow the adoption of their plans. London, consequently, except few minor improvements, had to be rebuilt upon the old foundation. Wren, moreover, suggested adoption of a river-side queue as embankment along the entire frontage of the city of London, and only this part of his plan was actually carried out.

Before the middle of the nineteenth century, cities and towns could not grow beyond their limited short circuits, which could be traversed either on foot or in animal-drawn vehicles, or by waterways as in Venice. Although two-wheeled horse-chariots were used in Classic Greece and Rome for war purposes and processional displays, horse-drawn hackney carriage first appeared in Europe in the first quarter of the seventeenth century. Railways, thereafter, in the nineteenth century, established suburban communities along railway lines. As a result of that, daily passengers could attend their daily work in the cities from distant suburbs. Yet they needed quicker movement. Overhead and underground railways driven by electricity met their demands and enabled their rapid journeys besides mass transportation. Gradually buses and motor vehicles replaced the trolley system, animal

and horse-drawn carts and carriages. Air services have recently revolutionized the system of transport and communication. The USA has produced a type of flying machine which can carry four hundred passengers per trip with a speed three hundred miles per hour.

American City

More than a few modern cities in America including New York are being guided by old systems of planning which produced charming functional cities like Washington. At the end of the eighteenth century President Washington had his Washington designed by a French Army engineer-architect in a very picturesque manner. The administrative capital of the USA, *i.e.*, the garden-city of Washington, is an example of a complete organic form of well-balanced corporation which should inspire planning architects of this age and of all ages to come. Washington has a great historical background connected with the great sons of America from its very beginning. Its central mall studded by public edifices of architectural masterpieces in Renaissance styles, leads to a group of magnificent Capitol buildings. Each of its rectangular-shaped community blocks served by grid-iron street system has been reinforced by diagonal roads converging on a dignified compound with classical national structures. Each of the diagonal avenues, more or less 150′ wide, has been named after the States and territories. Those streets which run north and south have been numbered consecutively each way from the meredian of the Capitol. The big cities of the USA have more or less grid-iron-plan arrangement with

streets numbered like those of Washington. The city planning authorities of America have recommended introduction of diagonal avenues in order to facilitate quick approaches to a radial route to reduce the distance between the business quarters and residential zones of the city proper. Equitable distribution of public parks and children's play-grounds forms another important feature of American town planning. These parks and play-fields have been linked together by wide street avenues with towering spreading oaks and elms. Beautification of river banks with strong elegant promenades and artistic beauty-spots, besides landscaping, is among the chief items of American planning, urban and rural. The Central Park of New York is a remarkable example of flexanimous modern gardening.

Development of American Architecture and Culture: Lesson for India

Thirty years ago, by American style of architecture was generally understood the Colonial and adaption of the English Georgian. Then came the Victorian Gothic. But, sixty years back, towards the end of the last century, the architecture of the United States was largely influenced by French and Italian architecture of the Renaissance. The Renaissance styles of European countries became gradually transplanted in America as they were done in India. The young American architects soon excelled their masters in copying old buildings and making them suitable for the local conditions. Thereafter, actuated by new revolutionary ideas not to remain under the subjugation of European culture, they strove for freedom for the solution of the country's

problems. With the rapid growth of the great American culture, with their national awakening, they realised that it was dangerous in America to have exotic influences. They must avoid aping European styles of architecture. Since then they have exerted themselves in the evolution of an altogether new style to suit their needs, customs and materials. Dr. Harvey Wiley Corbett, Claude Bragdon, Frank Lloyd Wright, Louis Sullivan, Dr. Ely Jacques Kahn and other architects united in the movement through architectural leagues and institutes, some of them devising original methods of approach. They have brought a revolution in the world of architecture. Few of them have diverted their attention to the development of their indigenous architecture of pre-Columbian days. Many new forms have appeared since the enforcement of the Zoning Regulations. The Empire State Building of New York is the best example of zoning set backs and of the artistic potentialities of recessed storeys and towers as well as the incalculable benefit to real estate values. The " four height " districts of the city with their towering sky-scrapers have made New York most wonderful.

Creative Architects

Among the leading architects of this age Le Corbusier, Walter Gropius, Frank Lloyd Wright and Prof. Sir Charles H. Reilly have created new schools of thought. Le Corbusier of Switzerland with his wealth of inventions, with his conception of space, his faculty for arranging the various strands of architectural complicated texture, interwoven with threads both visible and

invisible, brought a pattern rich with motifs which convinced every one who had the eye to judge architecture, and which have formed the nucleus material for the international architectural vocabulary. Walter Gropius with his new conception managed to beautifully unite art with industry and daily life, using architecture as the intermediary and laid the foundation for a sound contemporary architecture which culminated in the wonder of the Bauhaus School of Germany after the termination of the First World War. Frank Lloyd Wright has endeavoured, successfully, to express himself in Organic Architecture by the use of materials taken directly from Nature : rugged stone walls, rough granite floors, heavy unfinished timbers. During the long period of his stay in Chicago he refrained from using skeleton either of iron or ferro-concrete and glass. He tied the human dwelling to the earth. His creations harmonised with the spirit and soul of Nature, conforming with Space and Time, and generated an artistic language of his very own. Basing on a sane exploitation of the latest up-to-date resources of modern building technique, Professor Reilly of England has brought about a stimulating architectural language honestly to express in a dignified form the purpose of the structure. His well-selected materials and sympathetic colours have nowhere failed to generate the spontaneous flow and rythmical movement of his masterly composition.

Complex Problems of India

That future Indian towns and villages should combine beauty with all items of utility, comfort,

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health and efficiency, no one will deny. Improved automobiles, overhead railways, elevators and air-ports are needed in India in abundance, no one will dispute. Gigantic sky-scrapers furnished with modern mechanical appliances, telephones and radios have enabled all business transactions in Europe and America to be quickly and smoothly conducted from centrally situated zones, Indians are aware. But those conceptions have confounded ninety per cent. of the Indians who are accustomed to different ways of living and thinking. Their age-old social habits, customs and conventions, and their century-old political and economic subjugation, do not encourage them to divert the stream of their simple living into new-fangled complex channels. They are still facing acute difficulties. These and other complicated problems have urged the formulation of one simple, social, economical and smoothly workable scheme. Tagore and Mahatma Gandhi, as the first clause for replanning India, entreated reorganizing and co-ordinating Indian villages which in ancient India formed the arteries of the organic body of the nation. The entire India was and is bound up inextricably with her villages. And, as such, rural developments including the spread of education and the expansion and improvement of cottage industries should, in their opinion, be attended first. Village groups should be co-ordinated and transformed into garden-towns and garden-cities gradually. And higher amenities of life with mechanical equipments should be introduced slowly with increased resources. The people, till then, should lead simple unostentatious life, should increase their vitality and moral strength to

enable themselves to shake off communalism, provincialism and nepotism and unite into a healthy nation with spiritual outlook. There is no end to material needs and luxury. It is only spiritual calm that can usher in mental happiness to weary mankind, Civilization needs such Spiritual Order so as to be saved from war and destruction. The treatment by Barons and Lords of the Serfs and Commons has not been congenial. 'Industrial and commercial' minded capitalists in all the periods in world history have always formed an unsocial class of their own and have always fostered a partisanship opposed to democracy and social harmony.

There are people, on the other hand, who consider that immediate attention should be given to large scale industrial and commercial development and to manufacturing key industries with the help of imported Consultants and imported plants and machineries. They hope, not without reason, that water power generated from harnessing numerous mighty rivers and waterfalls of India should be very economically and profitably utilized for running machines in factories and mills, as has been successfully done by the Hydro-electric installation of Sivasamudram, Mysore. They wish that agricultural lands should be fully watered by irrigation canals diverted from the perennial rivers by anicuts and dams as has been done by the Bezwada anicut of the Kistna and the Sukkur Barrage of the Indus. In their opinion Power development and Agricultural improvement should be given priority in executing a planning scheme. Such operations have already been taken in hand by the Government of Indian

Union through the Mahanadi and Damodar Multi-purpose projects which are expected to do immense good to the people.

The Exchequer of the Union has somehow managed to provide large sums of money for them. Other big projects of equally important nature have been kept pending. It has been considered that these costly ventures may largely be financed by the Sterling Debt of 1600 crore rupees which Great Britain owes to India. But how and when to get back the amount ? How to arrange finance otherwise ? These are problems for experts to tackle. The humble writer, however, feels inclined to suggest that without further delay first class Schools of Regional Planning should be established in Indian provinces so as to train numerous planning architects (co-ordinators), technicians and other technical, administrative and operative personnel all over India with a view to scientifically and economically operate the projects. Enormous loss and perpetual difficulty threaten the operation of large schemes prepared by foreign experts but operated by local people untrained and unqualified. Amazed with the gigantic operations in the UK and USA, Indian economists and scientists, administrators, capitalists and industrialists who recently toured these countries have written and spoken much on the TVA and other achievements. Some of them, perhaps most of them, are innocent of adequate technical knowledge and experience in planning. Yet they believe that a new prosperous India can be created in few years through industrialisation by following the examples of the Westerners cent. per cent. of whom are educated and fully trained in their respective works.

All of them are united in the cause of their national progress.

Promises assuring rapid prosperity to 30 crore people have repeatedly been announced through the Press and Platform. In reality, in the last three years, only very little has been done even moderately to feed and clothe 25 crores, most of whom cannot afford one single square-meal a day. Yet large sums are going to be spent on industrialisation which will at the first instance mostly benefit the Capitalists besides UK and USA markets. The growing poverty of the vast majority of the Indian population has become really intolerable. Unless the wealthy sections of the people—the profiteers, black-marketers, mill-owners, industrialists, bankers, merchant princes and corrupt officials—change their heart and combine philanthrophically to redress the lot of their starving brethren there is very little chance for India to retain her hard-earned freedom. State Legislation may be enforced to compel the wealthy to surrender some portion of their accumulated wealth for liberating the economic serfdom of the oppressed poor. The loss of health and vitality of 25 crores of people is a terribly serious problem.

An well-wisher might suggest that the MACHINE should not oust MAN POWER from this or any country until adequate provision is made for solving the bread problem of the poor whose occupation will be snatched away by Machine. There are already millions of unemployed persons in India. Of course a number of them as well as many refugees can be employed as labourers and in subordinate services. But what about the rest ? There is another risk in indiscriminate

industrialisation. Agricultural labourers will abandon their occupations and seek employment as industrial labourer under the temptation of ready money and fixed income. Agriculture will thereby suffer to a great extent. Another problem: even if large industrial projects are taken in hand now, how to get qualified personnel to conduct the complex operations? The Nation will have to lose billions of rupees if defective schemes are prepared by foreign experts with little or no knowledge of Indian life and living and of Indian problems and executed by untrained Indians. Not only that: if a project is badly planned and executed, perpetual recurring expenses will be necessary for frequent repairs and rectifications of the defects. It is not possible to train hundreds of thousands of Indian youth from abroad with limited funds now at the disposal of the Government. All this justify the establishment of Schools of Architecture and Planning in India without further delay.

The Government with insufficient resources at their disposal, instead of attempting to rival the UK and the USA in the field of industrial production, might turn their attention to the cause of the poor and the needy. Mineral deposits may remain buried under hills, dales and jungles till our descendants are endowed with adequate training and fellow-feeling to extract them in proper, economic manner for the benefit of all. Without drastic industrialisation the people of this fertile country can be well-fed, well-clothed and well-educated as was possible in past India.

This is why Mahatma Gandhi opposed the idea of industrialisation. So long as luxury in the garb of ame-

nities of the so-called civilized life will rule the nations, war and hatred will continue their nefarious march of destruction. It would rather be happier to live in hills and jungles with the Bhills and Santals than in the industrial and commercial towns of Europe and America. National Health, Social and Basic Education, must first of all be restored leaving aside less-urgent large-scale industrial projects. Industrialisation has absorbed too much attention of the Indian Government.

There is another danger. The administrator, with more or less theoretical knowledge of law and legislation sociology and political economy, has almost monopolised the technical task of rational planning. The remedy does not lie in associating qualified scientists, insurance directors or bank managers, in the ordinary sense of the term, in planning and general administration. One would wish that only technically qualified planning architects could rationally co-ordinate and correctly, economically, operate each and every item and aspect of a broad-based Human Plan simultaneously. They could arrange collaboration with specialists among engineers, economists, scientists, industrialists, educationists, administrators, health-officers and others and strengthen the scheme with a synthesis of their expert advices. Piecemeal planning and execution of a few items devoid of consistent relationship with the problems of the surrounding region, may do incalculable irreparable harm to the all round organic development of a broad-based plan.

At any rate there should, on principle, be prepared a self-sufficient comprehensive plan that can judiciously fit together patterns of land use developed to modern standards and all rational items including communica-

tional, agricultural, industrial, commercial, social, cultural, sanitary and co-operative units. Only those urgent items, in which the entire population is interested, which can smoothly and very economically be operated in a democratic manner, should be given priority. Later on, with the increase of resources and trained personnel, other items should, gradually, be taken in hand and fitted into the frame work of the elaborate plan covering the entire region. The time for indiscriminate industrialisation is not yet come.

Cultural, political and socio-economic plans of ancient and modern civilizations of Egypt, Assyria Babylon, Mesopotamia, Greece, Italy, China, India, Indonesia, etc., as well as the cities of the U.S.A., particular country towns of England, the Lake District of Scotland, Paris, Geneva, Canberra (Federated Australia), Mandalay, Yakohama and other towns that have followed special traits of development should be studied in the light of their organic growth, prior to the preparation of a synthesis which will guide correct planning of Indian cities and towns of to-morrow. Mysore, it may be mentioned, has fairly successfully carried out plannings and developments on modern lines. Yet for the fulfilment of India's special needs and ideals Mysore requires something more. Hyderabad and Travancore have exhibited nice programs. Same difficulties also threaten them. The concept and technique of Indian traditional planning, India's socio-economic principles, will considerably help the planning of future Indian towns and villages where healthy and happy men will equally derive adequate nourishment for their material and moral growth.

Organizations Abroad

Town planning architects in the U.S.A., England and U.S.S.R., since the commencement of the last global war, has remained busy in evolving plans for their post-war homes and business centres, in the light of the latest advances made in this line world over. The Minister of Protection in Great Britain took to building model houses of various types including pre-fabricated ones for demonstration purposes. Responsible Britishers travelled through the United States of America to study the latest house-building developments there. The last World's Fair in New York exhibited Norman Bel Geddes' "Futurana" with its overwhelming network of super highways, its spacious airy cities, its double decked thoroughfares contrived on the matured ideals of modern city planners. Dr. Harvey Wiley Corbett, who was the Chairman to the Architectural Commission of the World's Fair in Chicago, 1933, has contributed a thought-provoking design for future city avenue in the latest edition of the Encyclopaedia Britannica, the architectural section of which has been edited by him. Future cities, as suggested by him, will display immense lines of sky-scraping structures inter-related with one another, on either sides of spreading boulevards. Their very long rows of apartments will appear as if they were honey-combed against the gigantic cliffs of the Grand Canyon along its deepest gorge. Future cities will display much more elevated automobile highways and tunnels, more striking transcontinental boulevards, and above all, will stimulate increased decentralisation into a multitude of small self-contained units and aggregations

near metropolis, each with every necessary resource for community and social service demands including parks, churches, educational structures, recreation centres, theatres, etc., and each with adequate facility within its limited zones for most of its members to earn their livelihood. The official planners of New York have planned for their city's ultimate reaching a population of 21 millions in 1965. Some of the New York sky-scrapers house 60,000 people each on only two acres of ground covered by each.

Spirit of America

Landing in New York, entering into its heart, one finds a city immense with massive edifices and sky-scrapers towering higher and higher, as if he is in the gorge of the Rocky mountain with its honey-combed cliffs of gigantic houses and cupolas, which in day time thrills him with the stupendous engineering feats, its awe-inspiring shining metal helmets, its stirring masses and sharp outlines. A view of the sparkling city at twilight from the top of the Empire State Building, which is 1250 feet above the roadway and one of the highest structures in the world, containing at its apex one dirigible mooring mast, or one view from the Chrysler Building standing near it, in a glorious cloud-less evening when the crimson sun is as yet visible at that altitude and the deep valley between midtown New York and the peaks of the financial district is beginning to be steeped in darkness and the buildings are lighting up, and New York is beginning to sparkle, enchants and carries the sight-seer to the dreamland of Aladin with fantastic citadels and towers and

spreading shadows. Only a few moments, and chains of yellow fire burst out simultaneously in every direction, all of them converging under the roofs below. The street lights are coming on. Lower Broadway wears a crooked necklace of diamond beads and upper Fifth Avenue speeds North, straight as an arrow in a yellow lane. The city stretches away with lights and shadows into infinity on all directions. Ship-studded harbour, mystic Bay and the hazy Atlantic touch like a dream to his eye. The last rays of the sun glitter on the silvery helmet of the Grand Chrysler across the narrow chasm. The only sound is the whispering of the gentle wind. All the grumble of the city below is unable to reach such height. The kites and pigeons that wheeled and fluttered at a height hundreds of feet below the top floor of the Chrysler have gone down to their resting places. Human beings cannot be seen from such height and automobiles seem to dot the surface of the street. Gradually, the sky becomes enveloped in darkness. Going down along a noiseless elevator and standing on the broad foot path crowded with tall American men and women, along the sides of a hundred feet road, he once again enjoys the splendour of the city in illumination. By night, the city enchants with the loveliness of amber lights hanging from the sky, or with a tower of flame, or an opalescent glow of colour projected on titanic walls of the 42nd Street in the Theatre district. In no other city of the world he could come across a greater charm and more confusing atmosphere, and never could he form an idea of the spirit of daring and dauntless courage that suffuses a sky-scraper before actually

standing in front of one and timidly contemplating its gigantic glory which overwhelms his very soul. The harnessing of Nature by Man and the limitless power which Man possesses in order to compel Nature to his behests is almost stupifying in their victory over what would have appeared to be impossible of achievement.

The sky-scraper is an embodiment of the artistic and material achievements of the New world. It is expressing the modern methods of steel-frame and concrete construction; an artistic expression of materials and form in harmony of line and in colour as well as in mass and proportion. It is indicating the real unity existing between architectural art and living in commercial America. In America there are laws against bad architecture like laws against indecent dress. The high level of culture and co-operation among civil engineers and architects as well as their clients sets the fashion or taste in architecture and, consequently, the tone of architecture remains high in America. There is a sincere co-operation between civil and mechanical engineers and architects. The erection of even a tiny petrol godown is considered there as a national work in which the prestige of the entire nation is awakened. The city and the citizens are indissolubly linked together.

India's Needs

Not even two items after the example of New York's titanic development could at one time be simultaneously operated in India under modern conditions and inexperience. Some very vitally necessary projects could not be, or were not deliberately, executed by the British

Government beyond the preparation of schemes. For example, Town Development, River Protection and Malaria Control schemes were prepared at the instance of the Government of Bengal by great experts including Patrick Geddes, Sir William Wilcock and Dr. Bentley. But the same were never executed. The schemes and designs prepared in exchange for fabulous fees were printed and shelved and they remain on paper.

The principal idea behind planning in India as that in other countries, should not be merely to provide for the material needs of human life and growth by applying teleological methods of approach or by the process of extrapolation but, also, to engender spiritual harmony among all nations in order to dispel the maddened zeal for exploitation of the resources of the weaker nations. Economic disequilibrium was one of the causes of the war. But the root cause was the lack of philosophical outlook. A developing position of spirituality with a consequent enhancement of social security could curtail many items of defence and military requirement. Industrialisation of this country would be welcomed had industrial outputs not been controlled by foreign or Indian individual Capitalists who want immensely to increase their individual wealth on the pretext of " doubling " the wages of the poor labourers under their control in " fifteen years ". What India vitally requires is the formulation of a free self-sufficient economy which would seek to avoid the extremes of totalitarian technique and capitalistic confusion. In 1944, Sir Ardeshir Dalal, then Member for Planning and Development of the Viceroy's Executive Council, broadcasting from New Delhi, said that the objectives

of the Government Plan were not the same as those of the Bomhay Plan, or those of the Indian National Congress. In fact, the authors of the Bombay Plan (of which he himself was one, not then under Government control), he said, did not claim to give a detailed blue-print. "Capital for the development of industries will be forthcoming primarily from private individualists" was his statement. The public, however, would wish that the Government (Now Indian Union) should finance the capital, issue shares to the public, and control the Industrial development for the benefit of the Indian public, guarding the general people from the domination of the Capitalists—the "private individualists". The Bombay Plan amounted to Rs. 10,000 crores. 60% of the amount was ear-marked for Industrialisation.

British rule in this country enforced the investment of foreign capital in Indian agricultural, mineral and industrial concerns. British policy indirectly compelled the present Mysore State to bring John Taylor of England for operating the vast gold fields of Kolar on payment of 5% Royalty to the State. Working of the gold fields was managed by Tipu Sultan whose gold coins vastly enriched the treasury of the then progressive State of Mysore. British control over India's political and economic life led to the utter dislocation of Indian national development. The Indian Congress National Planning Committee realised the need for soliciting foreign capital. But their resolution indicates that such capital on principle is to be issued against India's credit in the world market. Under no circumstances whatsoever should India's resources be dominated by foreign capitalists. Foreign capitals that have now been exer-

cising the fullest control over Indian industries and markets should be acquired by the State on payment of reasonable compensation. Where such interests are held by foreign companies with sterling capital, the payment of compensation should be effected through sterling balances. The special statutory safeguards provided in the former Government of India Act 1935, in respect of foreign concerns, should be replaced at the earliest possible date with a view to empowering India to operate her economic development on right democratic lines. All the eleven clauses encompassed by the Act have blocked the way to India's democratic industrialisation.

Abolition of big private capitalist by enforced Legislation can radically save Indian national industry from relentless monopolisation and exploitation. All Key industries including those dealing with power, engineering and the manufacture of machinery, have to be managed and owned by Democratic Power. Private monopoly should be forbidden. The principle of nationalisation of key industries has been accepted almost all over the world. Private industries, medium and small-scale, should be worked in conformity with the needs of a National Plan subject to the supervision by the National Industrial Council. Cottage industries should be organised through industrial co-operatives. Reserve Banks should be under State control. The State will control imports and exports, issue of capital, location and management of large factories, credit, dividends, planning of crops, holding of land, etc., with the full, ungrudging, support of the general masses behind it. By so doing India's economy and culture

can be nationalized and her economic and cultural freedom assured. The place of middle-man should be taken up by non-profit-making agencies like co-operatives. There should be a Trust Fund to grant loans to small scale industries. The monopolisation of resources such as capital and land, and the control of mines, power, factories, banks, etc., induce the nations kill one another not only in war but also in peace. The accumulation of wealth in the hands of a few causes the shrinkage of markets, the fall of dividends, the restricted limitation of production, wide-scale unemployment and heart-rending starvation in the midst of plenty.

At a most difficult time when India was passing through critical days of her economic, cultural and national existence under foreign mal-administration, Netaji Subhas Chandra Bose, then President of the Indian National Congress, realised the vital necessity for organizing a National Planning Committe to devise and formulate ways and means for economic and cultural liberation of India and forcing the then Government to operate the scheme to be prepared by the Committee. Inspite of difficulties and oppositions he organized an All India Committee of experts and accepted its first chairmanship. Subsequently he appointed Pandit Jawaharlal Nehru to direct the planning affairs on his behalf. After working for years of strifes and struggles the Committee have recently published reports, in twenty five volumes, concerning various aspects of national planning. So far as has been possible of them they have given directives as to the preparation of regional and local plannings concerning key industry, power, improved irrigation, forestry,

scientific agriculture and rapid transportation besides education, health, recreation, etc.

Russia and Germany

Numerous rural developments have been carried in the West on co-operative basis. Community grouping of self-sufficient villages which conduct collective or co-operative farming for the production of food has been very successful in Soviet Russia. Experiments are being made in India after the Russian model. Collective farming pools the resources of several adjoining villages. It implies abolishing of individual holdings and ownership of land in a village, vesting it in an association or group of people who could share the profits according to their contributions to the common effort in land, implements, live stock, foods, seeds, buildings and labour. That form of corporate organization enhances the income of the agriculturists, organizes agriculture on a more productive scale, and eliminates middle-man's usually large profits. Soviet Russia, in the midst of an industrial revolution, has been enriched with numerous well-planned, well-equipped, new towns and community centres; new roads; railways and canal systems; a new agricultural policy; all the public utilities brilliantly planned with the frame work of national synthesis. Russian form of farming, however, has nothing to do with industry.

Before the last world war Germany profitably combined the two items, farming and industry. A delightful combination of rural and industrial, social and cultural life was then to be found in the district round Nuremburg in Germany where picturesqueness and prosperity thrived, grew, and vied with each other

side by side. It became not only a flourishing agricultural tract but its industries came to be world-famous. The industries and agricultural products enabled village groups to develop into small country towns. The setting had essentially been rural and the natural scenery kept unhampered, only in particular cases improved by sanitation and otherwise which the increased income easily allowed. Workers were mostly employed from their own villages and partly from neighbouring ones. In many industries they worked only part of the day and devoted the rest of their time to rural occupations including poultry-farming and animal husbandry. It should be mentioned that their industry required minimum of machinery and maximum of labour. And the industry was of the seasonal type where the industrial work coincided with a slack season or period in agriculture. In Germany small-scale industries employed about 2/5 of the entire population and embraced more than 90% of the industrial establishments. In all highly industrialized countries small-scale industries are fundamental parts of the national economy. India should note that.

India's Complications

According to the census of 1941, India with an area of 18,08676 square miles and seven lakhs of villages, had a population of 40 crores. It is as big as Europe minus Russia and nearly twenty times the size of the British Isles. 90% of the people live in villages. Agriculture is the main source of their living. Over 70% of the working population is engaged in agriculture. There are diverse ways of their living and

food habits. India has diverse geographic and climatic conditions and extremely varying types of agricultural regions. The average rainfall varies from ten inches in Sind to over hundred inches in East Bengal and Travancore. The average annual income per capita is Rs. 65. Majority of Indians do not get one square meal a day. Whereas England maintains one doctor for every 776 persons and a nurse for every 435 persons, India maintains one doctor for every 9000 and one nurse for every 86000 persons. While most of the civilised nations have almost cent. per cent. of their people literate, in India only 12% can read and write. United Kingdom spends Rs. 77 per head of population but average Indians can afford to pay Re. 1 per head.

Post War Reconstruction of such an India with her complicated problems must concern itself first of all with the life of the village in all its aspects. It will have to be broad-based on the re-orientation of 7 lakh villages, numerous towns and cities controlled by 750 Municipalities and 760 District Boards with not less than 18% of the world's population. Those have to be co-ordinated by methodical groupings of Regional Units with a view to permitting and energising the fullest development of resources and rights all over the country which is the object of National Planning. Local Plannings, rural and urban, will have to be fitted into the framework of Regional Planning. They should be flexible and capable of modifications to meet changing increasing needs. The Planning and Reconstruction should aim not only at a peaceful fraternal India but also at economic, cultural and political co-operation with other countries of Asia and the World,

in which the vast machinery of Technology, Organization, Production, Distribution through efficient Transportation, have to be harnessed to serve as the effective instruments of human ideals of liberty and justice, utilizing at the same time profitable elements in Indian traditional, social and cultural, plannings as already indicated. Forms of regional organization, methods of individual and corporate financing and types of planning for regional villages in India will have to be decided very carefully. These will, naturally, vary from region to region. But it is most essential that each regional developmnet proceeds in ways conducive to the real welfare of all her people including the poor and the middle class, consistently with the balanced advancement of the Indian National Commonwealth.

In planning developments in India, the planners should note that the true functional expression of a people rests in their architecture and arts. Their spiritual, philosophical, beliefs are best expressed through this medium. While India must come abreast of modern trends in town-planning, sanitation and commercial and industrial dovelopment, through the preservation of her arts she will retain her individuality as a people, and therefore, retain for the world those rare qualities of spiritual value which the onrush of industrialism has so seriously threatened. The development of Indian arts, which will be fully expressed by Indian Architecture, will result from an honest expression of India's solution of her problems, reflecting the racial and social characteristics which are dear to her. Indian planning cannot be merely of an External character (the political and economical side only of the physical life) but must, also,

include the Internal side—nay, must, in reality be based upon and proceed from within *i.e.*, the inner spirit and the real genius of the Indian Nation and suffuse itself over all aspects and phases of Indian external life—Physical, Political and Economic.

Complications and conditions in India are very different from those in Europe and America. In America, farmers, ranchers and other rural dwellers use airplanes for both business transaction and pleasure. Fruit and produce growers use aircrafts for inspecting their crops, or dusting them with insecticides to destroy pests, or surveying conditions of irrigation ditches, wind mills and other farms and orchards. Farm produces, fresh eggs, vegetables and green fruits are very quickly carried by planes to distributing centres. In the case of large scale operation, seeds are scattered from them flying at low levels of less than one hundred feet. Planes scare away birds that damage rice crops. Insect-killers are sprayed to destroy insects in fields covering about 400 acres a day from a single light plane. Each farmer in America is fully equipped with machinery, telephone, electric power, automobile, tractor, bull-dozer, etc. His children are carried every day to village schools where they get meals. His family can easily attend distant churches, undergo national planning courses through radio, and attend social gatherings in remote villages with the help of automobiles.

Until India strengthens her economic foundation and increases all items of resources, mechanical and technological, which will take years, the large scale development of her key industries may not be taken in hand all

at once. Bullock cart has to remain for considerable number of years and should be improved with springs, rubber tyres and otherwise. Well-organised patient researches followed by long term experiments will be essential to evolve suitable fertilizers for improving India's agriculture. A vast sub-continent with diverse climatic, geological, biological, physical and chemical character as India is, she requires thorough investigation before a wide scale artificial manuring is prescribed by fanciful persons, and interested business men, just looking at an excellent catalogue of western country that deals with manures applicable there. The characters of Indian soil differs even within an acre where patches of different plants thrive on calcium, iron, potassium, magnesium or other food contained in the soil. A Superintendent of the Royal Botanic Garden in Calcutta, Dr. K. P. Biswas, has observed such differences. In his expert opinion every species of plant, crop or weed requires special quality of food. Special attention should be paid, he says, to the microbiological condition of the soil, which plays an important rôle in controlling diseases and preserving natural fertility of the soil. To upset the natural operation of microbiological activities by using artificial manures without reference to chemical composition of the soil will be disastrous, he asserts. It is easy to get bumper crops by using artificial manures in the first year, but where is the guarantee about subsequent years ? The quantity of artificial manures will have to be increased from time to time and more elaborate treatment of the soil by mechanical apparatus will, also, be necessary. Where is the provision for this for the

millions of cultivators who live from hand to mouth ? Professor Einstein holds the same opinion. According to a news published by the Associated Press of India, June 8, 1948, Professor Einstein has given a stern warning against modern methods of agricultural production. He says : "Though by using huge tractor, machinery and chemical fertilizers the Indians could force up production for a time, the eventual result of all was likely to be the complete loss of fertility of the soil resulting incalculable and irreparable injury to the country."

The nutritional value of the crops raised from artificial manures, moreover, will also have to be taken into consideration in comparison with the natural crops. Nature modified to suit human needs is the best cure. Because USA has very profitably used certain fertilizers in producing rice and wheat, the same must be used in this country for increasing production of rice and wheat, is unsound argument. Researches and experiments have to be made in close conformity with local conditions prevalent in different soils in India. One may hope that the Imperial Council of Agricultural Research will solve Indian problems. *Ayurvedic treatment and traditional masonry building specifications of this country are, similarly, being ousted.* In the seventh century A.D. Huien Tsang, the famous Chinese pilgrim to India, mentioned the celebrity of Himalayan medicinal plants and curative herbs— treatises on which existed and still exist in Tibet, Nepal and elsewhere—as well as traditional methods of treatment. Bio-chemical researches concerning botany, physiology and bio-chemistry on the study and analysis of ancient Indian pharmacopœia will

result in the rediscovery and revival of traditional ayurvedic drugs and technique some of which were and are infallible in curing chronic diseases. Old-world empiricism and modern medical treatment will find a congenial meeting ground thereby. The Benares Hindu University has rendered good services in this direction.

Researches in the study of methods and materials of old house-building craft in different parts of the country will be conducted in the laboratories of the proposed School of Indian Architecture so as to enable the Indians to profit by the old system which has been killed by the P. W. D. specification and regulations. The durability of old Indian mortar, brick, stucco, masonry-roof-terracing, fresco paint, wood work, steel, etc., strikes modern engineers with wonder. Their specifications must be found out. The immense strength and durability of old Indian structures, built with indigenous materials, according to ancient building specifications, are very well known. Ancient buildings withstood ravages of time for thousand years with inevitably lower recurring expenditure on upkeep and repairs. Their brick masonry did not give way to the action of saltpetre, their sal beams did not lose strength, their iron pillars and girders did not rust, their roofs did not leak. A portion of the road constructed in Rajgir (Patna district) in the time of Bimbisara, over 2500 years ago, still remains in good condition. The paintings in the caves of Ajanta have survived 1500 years.

In each region there should be a College of Agriculture with Research Laboratories and Experimental Farms irrigated by streams or lakes or power-operated tubewells. The Research Station should provide

facilities for working on all major economic crops of the region and provide working accommodation for specialists including the Economic Botanist, Mycologist, Entomologist and Agricultural Engineer. Special researches are necessary to evolve varieties of paddy that will resist floods and saline water. There should be separate research sections for Horticulture, Botany, Agricultural Chemistry, Mycology and Entomology, and Agricultural engineering. Instructions on Plant Protection, Quarantine and Storage Organisation and Composting will be given in the villages, under the direction of a Biochemist, concerning farm yard wastes and other miscellaneous wastes. Experts trained in Entomology and Mycology will educate cultivators in the methods of dealing with insect pests and diseases that damage crops. Instructions and researches on Veterinary Science, Animal Husbandry and Livestock Breeding be conducted. Rural Dispensaries, Dairy-cum-Poultry Farms be established. Pastures, *i.e.* grazing grounds and fodder crops be improved and extended. Sterilized bone-meal flour and bone-meal manure be manufactured and utilized for making up the mineral deficiency in the soil, plants, animals and human beings. Raw bones provide necessary minerals that increase the fertility of particular types of soil. Leguminous crops of certain botanical order like lucerne, cow-pea, etc., used for feeding the cattle, should be grown as a second crop, after harvesting the main paddy crop, because they increase the fertility of the soil with the help of nitrifying bacteria present in the root modules. Higher yield of paddy from the subsequent crops is obtained thereby. Industrial

methods of producing food such as edible fats and oils from coal and sugar, from wood and synthetic vitamins, for evolving a Balanced Nutrition for fighting under-nutrition, should be encouraged.

The Marketing Officer and assistants will conduct statistical survey and development of marketing activities in respect of various kinds of grains and pulses, fruits and vegetables, special crops, livestock and fishery. He will formulate and execute new schemes of marketing with special reference to co-operative marketing, regulation of weights and measures, organization of regulated markets and introduction of quality standards.

A Master Plan

India or any country has to be divided into regions in relation to her diversified physical features. The various kinds and characters of survey and stock-taking concerning each region, and the planning schemes resulting therefrom, must be linked up with adjoining regional schemes as they all contain, more or less, elements of larger issues, which are national in character, so that a countrywide national survey will be made in order to co-ordinate the regional schemes which will be embraced by the national economic program. (The technical process of framing and operating a planning scheme will be treated in a separate volume that is under contemplation. The students of the proposed School of Architecture and Planning, it may be hoped, will be trained thoroughly in each and every essential subject and aspect. They will be taught to plan not only in relation to advanced technical methods but also in relation to social organisation such as culture and

religion, politics, economics. sociology, law and administration with special reference to their Human application. The philosophy of planning will enlighten them to treat the World as Home. They will get to learn the social concept of the community with higher life forms as its spiritual back ground.) The survey will encompass all fields of human thought and activity, contemporary as well as historical, demographic and ugenic, social, cultural and spiritual. In terms of social science as Civics it will aim at amalgamating all these studies.

One well-laid town planned rationally, makes proper use of every type of soil and regulates the life and destiny of the inhabitants. Failure to plan timely and judiciously has often led to the rapid degeneration of many countrysides in India and elsewhere. Land that was highly suitable for orchard and kitchen or market gardening has been bought up by the speculative builder of houses and bustees. Fertile fields which were being used to produce corn, grain, fruits and vegetables or pasture had to make room for huddling houses and streets ill-planned. Areas which could be better utilized for housing agricultural labourers have been allotted to artisans and mechanics. Charming countrysides with green meadows and foliage belts have been marred by commercial zones with hideous houses built indiscriminately. In most cases, lay-outs of private lands have not been fully co-ordinated with the adjoining areas. Every inch of available land has been made saleable as far as possible. Unsystematic developments have spoiled many beauty spots. Highways and truck roads have effected inconsistent

expansion of city far into the open country by long ribbons of harmful suburban houses that stretch monotonously for miles on either sides of them often times encouraging Malaria. All these have resulted from thoughtless planning or no planning. They will incur perpetual loss.

A Planning Authority

In the case of planning or replanning a country, state or province a Central Planning Board should as a rule be organized at the outset as an act of State Legislature. This Board will study the problems and examine the data in respect of various Regional Planning and set up regional branches for the preparation of regional schemes. After regional schemes are prepared by the Regional Planning Committees the same have to be approved by the Central Planning Board. Regional Planning Committees will in their turn appoint Local Committees for the purpose of preparing plans for their respective towns and villages and filling in the details. The Executive authorities will work out and operate internal planning schemes indicated by the broad outlines and the quantitative limits imposed by the Master Plan.

Thus the Regional Plannings will serve to connect the vast countrywide National Plan with the Local Plans. Whole-hearted co-operation is very essential between all authoritative committees and respective landlords responsible for the administration of respective regions some of whom may, possibly, desire to improve or develop their individual lands through plannings without having any sympathy for the interest of the

adjoining neighbours and without having any consideration for community need and collective welfare. Sincere co-operation between industrialists, sociologists, economists, planning architects, engineers and technicians, doctors, technologists, scientists, administrators, land-owners and the general public is indispensable to achieve the desired result by team work. Co-ordination between interested departments including Universities, Municipalities, Local Boards and Public Works Departments, Improvement and Port Trusts has to be maintained. Inter-Departmental co-ordination should be controlled either through a Liaison Officer or some other machinery. Without active co-operation of all classes of people a superior plan can never be designed and executed. In the case of each region that will need planning or partial development, existing Legislative Acts should be revised with the collaboration of technical advisers so as to enable proper plans, and prevent Ribbon Developments. The Acts should include Housing Legislation.

The financing of a scheme cannot be correctly or even approximately estimated before the plan of action and the rate of development are imposed authoritatively except an intelligent guess. The outlay will, therefore, have to be made not with the confidence of direct returns in respect of each and every item but to various indirect returns. Portion of the investment will be of such a nature that only indirect benifits will be expected. For instance, the expenditure made on Malaria Control or Flood Control cannot give returns other than improved health and social welfare. But there will be many items which, ultimately, will lead to considerable return, *i.e*, substantial profit, after meeting all initial expenses.

As soon as the scheme for development is publicly declared, there will be a rush for acquisition of lands. There will be a conflict between rival candidates vested with personal interests. The administrative jurisdiction, therefore, will have to be determined beforehand and the land required for roads, recreation centres, green belts, parks and sanitary services, which will equally benefit the general public, should be purchased at reasonably controlled rates. The planned-out plots should be purchased from their owners at the prevailing market price.

PLANNING CONDITION THEN : PROBLEMS NOW

Socio-political and several other problems of this age differ in many respects from those of the past. But there are certain items which have remained common for centuries and will continue to remain so for years to come.

Ancient towns in India, like many in other countries, originated chiefly from the necessity of compactness. It was growingly felt that the inhabitants of large villages could advantageously defend their resting places during wars from compact positions. Such consideration of compactness as well as the limitation of the circuit of defensive works dictated the planning of a walled town. In the course of time the latter was subjected to acute conjestion in places. In Mohen-jo-Daro, Harappa, Taxila, Pataliputra and other ancient towns, in mediaeval and later day Rajputana, Western and Southern India, and in Bengal, such battlemented towns existed in abundance. Secondly, it was experienced that more the abodes were close to the heart

of the town and less the inhabitants had to walk, more convenient it was to them. Thirdly, in the industrial and manufacturing areas labourers, workers and technicians had to be accommodated in houses adjacent to the working places in the factories. Manufactured goods had to be transported, and raw materials imported, along shortest routes. Sources of power and lines of communication determined the position and influenced the growth of manufacturing towns in a compact manner near the trunk roads or river *ghats*. Another reason may be ascribed to social psychology.

Village Planning

The typical form of an ancient Indian town and village protected by boundary wall and moat, was a rectangular enclosure with four sides facing the four quarters, and divided into four wards by the two main streets which crossed each other in the centre and were terminated each end by the four principal gates surmounted by towers. There were four subsidiary gates near the corners of the enclosures so that the entire circumference of the walls or palisade was divided into eight—the "Eightfold Path." In the centre of the town overlooking the four cardinal points stood a temple of Brahma, the Creator. From the temple the guardian deity with his four faces watched over the people in all directions and protected them. A tank or pool or well used to supply water to the temple. Inter-residential shops for food and commodity crowded near the tank. At the place adjoining the principal market, near which local streets formed a junction,

there was a shrine dedicated to the deity who protected the market.

The techniques of planning Indian villages did not fundamentally differ from those for towns. They complimented each other. Village planning had to be adjusted according to the needs, habits and customs of the villagers. Planned well, rationally and ethically, the future town and village will greatly influence and modify the habits, needs and ideas of the dwellers. They will acquire habits from the dwellings, they will live in as much from the environments. Spiritually and æsthetically planned homes of to-morrow will rapidly influence the outlook of the dwellers.

The problems of Indian villages have multifarious complicated aspects, geographical, geological, technical, sociological, cultural, commercial, economical and political. The aspects are closely inter-related. In planning or replanning villages, therefore, each item has to be considered in its proper perspective. The standards will generally vary from province to province, if not from district to district. The variations are subjected to economic inequalities, climatic environments, sociological circumstances, building traditions and occupiers' professions.

To most of us the vision of a village presents a romantic picture of peaceful rural dwellings in a pleasing healthy cool environment, nestling among orchards, olives, groves and green fruits and flowers, surrounded by colourful agricultural fields and horticultural gardens, penetrated by bullock cart tracks, innocent of modern macdamised high roads with motor traffic. Pre-British India had such villages. Almost similar to the same

were the English villages and hamlets in pre-Saxon and pre-Norman ages. Most of the Indian villages were, and still are, closely associated with agriculture. There are, however, different classes and types of villages in this country and abroad. Agricultural—Pastoral, Forest, Vocational, Industrial, Commercial, Educational, Religious and Strategic. Principal types are :

(1) Waterside villages : (*a*) River or Stream, (*b*) Lake, (*c*) Sea.

(2) Hill tract villages : (*a*) Hill top, (*b*) Hill side.

(3) Villages in plains. (4) Villages in marshy land. (5) Roadside villages. (6) Railwayside villages. (7) Suburban villages.

The major functional life of the village accounts for its special class, type and physical plan. Few particular classes may be mentioned. Pastoral village with its livestock, as the villagers' chief source of earning for living, develops on particular lines with space relationship and with strong barricade so as to guard it from the attack of carnivorous animals. Forest village is planned and built almost like the pastoral, particularly when the forest is infested by wild animals. Vocational village, when intended for manufacturing cottage or small industries, is designed to facilitate the living and working of skilled and unskilled workmen and labourers quartered therein. The problems of transport, storage, and its anticipated growth, should be considered at the time of scheming. Village industries should respond to the practical repercussions of a sociological philosophy. The village planning in bygone days that harmoniously

accommodated the ancient Indian Trade Guilds may substantially help the planner of a Vocational village of tomorrow. Ancient Indian village was a self-sufficient economic unit wherein artisans worked conjointly for supplying the needs of all the villagers and got a share of the produces of the land. The village guilds regulated hours of work, supplied necessary raw materials and decided social and trade disputes exercising real control over the artisans thereby. Industrial village : each manufacturing village, judiciously planned or developed to serve as a focal point, should stimulate and foster prosperous life of the surrounding rural population. In planning an industrial unit it is essential, therefore, to make a thorough survey of chemical, mechanical and power resources and potentialities; of raw materials, agricultural, mineral and chemical; of the home market and transport facilities ; and of labour force, both skilled and unskilled, available in the countryside. Commercial village tackles with problems concerning transport, marketing, stocking and price adjusting. A well-planned commercial centre is destined to improve the socio-economic conditions of allied villages. A Religious village usually originates and grows to meet the spiritual needs of pilgrim population. Sometime such villages develop into important places of pilgrimage. Ajanta and Nalanda are examples. Educational village in ancient India grew, prospered and developed at times into a large centre of learning culminating in a town. Takshasila (Taxila), Gurukul, Rishikul, Naimisharanya, Nalanda, Amaravati, Tanjore, Chingleput, Mathura, Conjeeveram and Srirangam, Jaunpur, Aligarh and Navadwip (West

Bengal) are examples. The Viswa-Bharati in Santiniketan has grown out of a very small organization in rural region. The Sri Aurobindo Ashram at Pondicherry was founded in a very humble scale. It has to-day grown into an important institution.

There are certain villages the planning of which depend on particular factors. The more important factors are their functional character together with their types and sizes of population. The situational evaluation is sometimes greater than their functional evaluation. Thus: a riverside village grows different in type and nature from a hill tract or a railwayside one. The riverside village has both advantages and disadvantages. The river ensures, on one hand, easy plentiful supply of water—health-giving and hygienic and, on the other hand, often endangers the village by scouring, soil erosion and floods. The mighty rivers Padma, Brahmaputra and Meghna in East Bengal have been permanent sources of both nourishment and destruction. The drainage facility is great in a riverside village but the possibility of water pollution is equally great. A roadside village, with heavy traffic, presents serious problems. Railway-side village, with its severe communicational impress, takes the form of a *serai* area. Impact of civilization compels both of them so to develop as to suit ever-changing conditions.

There are other factors, particularly in India, which cause different kinds of village planning. They are scanty and heavy rainfall (annual), intensity of heat and cold, dry and wet air, chemical nature of the soil, and geological, geographical and climatic variations.

Nature of available building materials in the locality is one main item which determines the character of a village. It is an almost unavoidable custom of the villagers to seek the cheapest building materials available in the neighbourhood and, also, which can be handled by them conveniently. Consequently, their structures do not last long. The planner should indicate the necessity for using good durable materials and at least fairly sound specifications for construction. The villagers should be educated in the matter from village training centre. Experimental yard, for testing and formulating building specifications with the use of building materials locally manufactured, and erection of model houses and cottages in suitable rural styles have to be arranged. Each village should store building materials as well as agricultural, medical and other requirements.

Following is an extract from the Report of the Indian National Planning Committee concerning housing in rural areas :—

The present unsatisfactory condition of rural housing is a direct consequence of the unsatisfactory condition of Agricultural and cottage industries. Improvement of Rural Housing is only a phase of the great Rural Reconstruction effort that will presumably be undertaken by the State. The problem of housing in rural areas is so much interconnected with the improvement of Agriculture and the cottage industries that it will have to be tackled by an agency which will work in co-operation with that established for the improvement of agriculture and cottage industries. It will generally be necessary to treat a group of villages as one unit—each

unit having its own marketing or distributing or such focal centre. Obviously every village cannot be self-sufficient. Some amenities will be common to the whole group of villages; while some amenities will have to be provided separately for each village.

Following is an illustrative list of amenities which will be treated on a regional basis, *i.e.*, for a group of a number of villages :—

(1) Marketing and distributing centres. (2) Main communications with cross drainage works. (3) Water supply schemes if the group of villages is favourably situated with respect to the central source. (4) Irrigation. (5) High Schools. (6) Dispensary and Hospital. (7) Ambulance. (8) Library. (9) Post Office—one central and few sub-offices. (10) Museum. (11) Electric supply, if possible. (12) Cinema. (13) Experimental farm. (14) Tannery. (15) Weaving shed. (16) Military Training Centre. (17) Police chowkie. (18) Dharamshala. (19) Co-operative Institutes including a bank. (20) Bus stand. (21) Radio place.

This is only by way of indication. Slight variations may be necessary to meet individual requirements.

Following is also an illustrative list of amenities that will have to be provided separately for each village :—

(1) Approach Road. (2) Field Tracks. (3) Village streets and squares. (4) Village walls, baths and wash houses. (5) Cattle troughs and ponds. (6) Public sanitary arrangements. (7) Meeting Hall. (8) Play ground. (9) Religious places. (10) Primary school. (11) Cemetries. (12) Work house. (13) Gymnasia. (14) Village Common. (15) Cattle Stand.

It will be necessary that both regional as well as local amenities are worked out on a planned basis. Master plans for the large as well as the small units should be prepared and the work regarding remodelling and future extensions as well as for these amenities should be carried out as per plan. The house plan and the domestic amenities to be provided therein will depend upon the class of persons for whom it is intended. These may be any of the following: cultivator, labourer, carpenter, black-smith, potter, tailor, shoe-maker, oil-miller, carder, weaver, brass-smith, shepherd, village priest or Mulla, shop-keeper, barber, washerman, tanner, mechanic, apothecary and village servants. With the revival of cottage industries, there will be a few more classes of workers.

An illustrative list of requirements for a Rural House may be given as under, to be oriented in accordance with the sanctioned master plans.

(1) Verandah or Verandahs. (2) One or Two rooms. (3) Kitchen. (4) Store. (5) Grain bin. (6) Fodder store. (7) Cattle shed. (8) Implements store. (9) Fuel shed. (10) Bathing platform or enclosure. (11) Sanitary arrangements. (12) Court-yard. (13) Manure pit. (14) Main enclosure.

The question arises as regards the agency by which the execution of the different branches of Rural Housing is to take place. General amenities pertaining to a group of villages and those amenities in one particular village which are common to all the inhabitants without distinction of caste or creed should be provided by the State. Schemes such as communications and cross drainage works will be undertaken by the Provincial

Governments—while the construction of approach roads, field tracks, gymnasia, etc., can be executed by the local authority such as a Panchayat by raising its own funds for the purpose or better still by co-operative labour. As regards the village house itself it is advisable that a village family should own its own house, as the population in a village is expected to be more or less immobile and, secondly, as a house cannot be well maintained unless the occupant has some adequate interest in it. For the civic education of villagers, there should be constant propaganda in the form of pictures with the aid of lantern slides and the like. These will emphasise on the fourfold aspects; (1) Good house with clean and cheerful surroundings; (2) Demonstrations as to how to construct such a house; (3) Methods and advantages of hygienic living, and (4) Advantages of co-operative work. This can be effectively done, if the main calamity of the village, *viz.*, the migration of the intellectuals, is stopped or the village is re-imbursed with its moral and intellectual wealth.

In his last writing suggesting disbandment of the existing organization of the Indian National Congress and adoption of a new constitution which might empower a proposed Lok Sevak Sangh to replace the Congress, Mahatma Gandhi observed that India had still to attain social, moral and economic independence in terms of her 7 lakh villages as distinguished from her cities and towns. In Mahatmaji's considered opinion, as were the principles of national planning in ancient India, "Every panchayat of 5 adult men or women being villagers or village-minded shall form a unit. Two such contiguous panchayats shall from a

working party under a leader elected from among themselves. When there are 100 such panchayats, the 10 first grade leaders shall elect from among themselves a second grade leader and so on, the first grade leaders meanwhile working under the second grade leader. Parallel groups of 200 panchayats shall continue to be formed till they cover the whole of India, each succeeding group of panchayats electing second grade leaders after the manner of the first. All second grade leaders shall serve jointly for the whole of India and separately for the respective areas. The second grade leaders may elect, whenever they deem necessary, from among themselves a chief who will regulate and command all the groups.

As the final formation of provinces and districts under the Indian Union Government is still in a state of flux, no attempt has been made to divide this group of servants into provincial or district councils and the jurisdiction over the whole of India has been vested in the group or groups that may have been formed at any given time. This body of servants derive their authority or power from service ungrudgingly and wisely done to their master, the whole of India. Every worker, Gandhiji felt, should be a believer in the ideal of inter-communal unity, and should have equal respect and regard for all religions and equality of opportunity and status for all irrespective of race, creed or sex. He should personally contact every villager within his jurisdiction, enrol and train workers from amongst the villagers, and organize the villages so as to make them self-contained and self-supporting through agriculture and handicrafts. He should

educate the village folk in sanitation and hygiene and take all measures for prevention of ill-health and disease among them. The Sangh should raise finances for the fulfilment of its mission among the villagers and others, special stress being laid on the collection of the poor man's pice.

Modern Planning : Achievement of England

Fifty years ago constructive thinkers like Ebenezer Howard and Patrick Geddes of England were the pioneers in urging the necessity for town and country planning on rational basis. As a solution to the acute health and housing problems due to indiscriminate overgrowth of the city industries with the tremendous increase in population, the idea of planning a garden city arose in the mind of Howard. As his Architecture correlated to and co-ordinated the organic members of the sociological composition, so his town-planning grew out of an understanding of social requirements and of solving the problems of an organic interrelationship between all aspects of functioning the city life. Both Howard and Geddes perceived that planning and architecture of a city or town had to solve every problem pertaining to the growth of Man very similar to that of a Home. Unless a town is planned well people will not be able to maintain a healthy life even if their dwelling houses were planned rationally. In formulating the framework of general planning they enlisted the co-operation of engineer-architects, sociologists, economists, scientists, medical officers, educationists and administrators. They were the actual co-ordinators of the various factors concerning well-ordered plannings.

Gradually their epoch-making activities influenced Europe, America and Japan. Numerous planning architects have since then been trained in those countries. They are now in key positions in guiding physical plannings world over. But India has no institution for training students in planning. In Europe and America there are numerous such institutions.

The University of Calcutta under the vice-chancellorship of Sri P. N. Banerjee has adopted a comprehensive scheme and syllabus for such training under the Calcutta University which one eminent planning architect of New York, whose services have recently been commissioned for replanning Kanpore and the city of Bombay, has appreciated as "superior to anything existing in the Western world." The Scheme and Syllabus has been jointly prepared by the present author and Major P. J. Marshall, R.E., A.R.I.B.A., planning architect of Coventry, with the collaboration of the Service Architects' Orgnisation that had been formed in Calcutta during the last world war. Strangely, though the Government of Free India has contributed large sums to the development of various educational items, it has failed to contribute necessary or any fund to enable starting the proposed School of Architecture and Regional Planning which is expected to embrace every aspect of national and international life and living, including science, technology, industry and agriculture. The School proposes to teach rational co-ordination of various sections of human activity, which cannot be managed by any existing institution in India. It will offer an integrated philosophy of building planning which, based on a high level of architectural technique,

will evolve a new standard of æsthetics and ethics.

In its editorial of 11 March, 1947, the STATESMAN observed: "One aspect of the changing conditions in india is a growing concern about the future of its architecture. It is felt that India must again work out its own ideals in building and town planning, both because the Indian spirit must be made competent to express itself in this sphere and because, the rest of the world needing so much trained skill, there will be little available to India from outside. In this movement many of eminence are taking their part, using as one basis of operations the plans and proposals associated with the name of Mr. Sris Chandra Chatterjee, a Bengali architect, in which a number of architects, engineers and others have co-operated. Interest has been indicated in centres all over the country. Viceroys and Governors have found time to approve. Universities and Municipal Corporations have given favourable attention. So have Indian Rulers and the Royal Institute of British Architects. The view that an Indian School of Architecture and Regional Planning is necessary grows strong.

If the new Government of India is to do its best for the country it must have competent executants in this sphere as in all others. They cannot be made competent except through competent training. Planning goes with building. If industry suddenly swells there must be the knowledge to prevent it from sprawling in the unsightly license from which Britain specially suffered in the nineteenth century.....The large University of Calcutta after much consideration and debate has

adopted regulations for the degree of Bachelor of Architecture, a course that will take five years to complete. Regulations without instruction and a school are small advance; the next step is for the University and others directly interested to decide on a site, which properly is to be in Calcutta, finance, instructional staff, equipment. Pandit Nehru was sympathetic about the desirability of this development in his convocation address to the University last year. "A School superior to anything in the Western world" was the comment of Colonel Mayer, the distinguished New York architect and planner, after discussing the regulations and proposals in Calcutta. The coming Inter-Asian Conference at New Delhi is to consider the establishment of an Inter-Asian Institute of Asian Architecture. Views of what is possible are steadily enlarging themselves." The School will not only train Bachelors of Architecture, as stated by the kind editor, but also Masters of Architecture and Masters of Planning after a training that will cover seven years overall.

INDUSTRIAL TOWN

Modern industrial town has been based on the necessity of mass production that requires the assembly of large groups of workers at a specific spot. One fairly large industry may employ ten thousand men and require a medium size town for its own use. Moreover one particular industry, be it a key industry or a medium, cannot usually flourish alone. It needs association of other allied industries and other items including food stuff. Agriculture, Dairy, Poultry, etc., can thrive well under the protection of large or medium

industries, if they are grouped collectively in zones close to the industrial town. All these make for the planning of a decent size town with thirty thousand population leaving a margin for future expansion. Industry requires a 'pool' of labour and labour needs a 'pool' of industrial establishments. The labour pool enables factory to employ additional workmen required in the process of expansion, and in periods of contraction to discharge workmen therefrom with better chance of their employment under neighbouring industrial units. Thus the industrial pool can secure various kinds of employment not only for the labourers and technicians themselves but also for the other members of their families. With the development of Industrial establishment, and with the increase in manufacturing, agricultural, commercial, trading, banking, educational and social service units, with the establishment of markets, store yards and shopping centres, should it be possible to generate cheap electricity through hydro-electric and thermal installations operated by water power or coal or crude oil or wood for electrifying towns and using tube wells for gardening and horticultural purposes, and if transport and communication are ensured by the development of major and minor roads connecting railway station and steamer *ghat*,—this medium size town will gradually be transformed into a garden of peace, prosperity and security.

Such transformation has been easy in the Western countries. In the case of India with her vast resources it ought to be easier. India's man power is second to none in the world. It has been ascertained that India has the capacity to become one of the most industri-

alized countries in the world. She is on the verge of the greatest step forward in human progress and well-being she has ever known. The realisation of her immense natural resources and vast potentialities is at last being appreciated, the spiritual enlightenment of her immortal sons—Sri Ramkrisna, Mahatma Gandhi, Rabindranath Tagore, Dayananda Saraswati and Radhakrishnan—have astounded the remotest corners of the globe. Her scientists and educationists have secured world recognition. This development in India will come not gradually, but by a great leap, as in the USSR, and the greatest need of all will be school-trained, full-fledged, planners and architects for the stupendous projects of the future.

MINOR TOWN

Five thousand population may be accepted as the standard of an average little town supported exclusively by agriculture. In regions of average fertility and density of population a little town may easily grow to this extent simply as a rural centre. Few grow beyond it, however, without the help of industry. Small industries including handicrafts can employ peasants during off-season. But there is another avenue of their prosperous employment. On a co-operative basis they can work on large irrigation, as was the custom in early India, in order to make agriculture not entirely dependent on rainfall. 5000 people will keep within walking distance of a single common centre which constitutes the business and institutional focus of their lives. Beyond that number, population tends to seek out-lying sub-centres and to require automobile service.

Sizes of larger towns vary according to the standard *i.e.*, density of population. In places with groups of existing villages large enough to be of more than minor significance, a large number of people will find a wide field of service. Where the price of land is high and where there is a large proportion of improved land,, where the value of farm product per acre is high, there the towns grow to be thick. With the gradual inclusion of industrial and other productive establishments a little agricultural town can grow into a large town or even a city where citizens can earn livelihood, find numerous avenues of occupation and employment, besides all amenities of civilized life. Many cities grew out of village groups. Calcutta is an example. In the third century B.C. the site of present Bombay was a cluster of seven islands, a group of villages identified with the Heptanesia of Ptolemy. The garden city of Pataliputra was an aggregation of picturesque villages connected with one another by sacred groves with guiding deities and charming avenues. A net-work of fortresses termed as *sthanieya*, *dronamukha sangrahana*, etc., used to defend the village groups all over Pataliputra. Pataliputra influenced the inhabitants in creating a civilized physical background for growth of human life with healthy spiritual ideals. It dealt with a growing association of civic and social movement with æsthetic effort in unison. The city of Bijapur once covered sites of seven earlier villages. A well-planned town or village with its dominant civic centre wherefrom spiritual cultural stream can flow spontaneously—as has been the city of Conjeeveram (Kanchi) in Southern India, Hardwar (Haridwar)

in Northern India, and Visnupur and Navadwip in Western Bengal—is both means and impulse to social integration, and to the realisation of the free fraternal life of the people living in it. The Viswa-Bharati of Rabindranath Tagore comprising Santiniketan and Sriniketan has been fast growing to a world institution and aspires to become a great garden city of cultural unanimity, Sri Aurobindo Ashram and the Viswa-Bharati from their very inception have cherished the ideal of an Inter-Asian Federation. Physical plan of a town is, obviously, a social science whereas the consideration of its efficiency and costs is economic. But the all round composition with rational co-ordination and the actual operation of the physical planning can only and exclusively be directed by the planning architect who is expert in the art and science of engineering, planning and architecture. The objective has to be shaped and authorized by the entire community and then administered through legislation and administration.

Character of Regional Planning

The mapping out of the entire vast region into prospective towns, villages, ports, mining establishments, and agricultural and industrial areas, etc., that needs proper development consistently with the particular geographical and geological conditions of the region, is called Regional Planning, Regional planning is a complex synthesis of Science and Art. It may be divided into two broad divisions : (1) Regional Survey, and (2) positive Regional Plan. The first consists of collecting and collating many relevant facts and figures of every aspect about the region, and presenting them

in clear concise form. The task of national comprehensive planning became very difficult to the Indian Congress National Planning Committee for lack of necessary data in the form of statistics and other materials required for co-ordination, for which the Committee appealed to the then Central Government in vain. The statistical basis for planning in India is almost entirely lacking. The second consists of assimilating these and, taking into account their relative importance and inter-dependence, of preparing a positive plan to be carried out in successive stages for the development of the whole region. This development would cover agriculture, industry, health, irrigation, forestry, horticulture, pisiculture, dairy and poultry, communication, education, housing and other community services including basic and vocational training, research and welfare centres, co-operative banks and societies. In their minimum term both Town Planning and Village Planning, however, relate to designing and erecting functional yet artistic groups of residences and business premises, with convenient streets connecting the structures, and leading out into the open country, as conveniently economically attractively as possible, in conformity with the real needs of modern living. There should be civic centres expressive of the civic unity of the inhabitants. In location as well as in architectural treatment the distinction between the principal and subordinate features should always be maintained although they should follow the grammar and composition of the architectural language of the region. There is a need to make the town and village a sound organ for living and functioning. But for the spiritual fulfil-

ment of needs and desires they must have to be made pleasing æsthetically and sociologically. Traditional plannings of Indian towns and villages can be very well developed to suit ideal plannings for human growth, envisaged by Wells, Rabindranath, Shaw and Mahatma Gandhi.

Satellite Town

With the uncontrolled increase in the city population and civic activity consequent upon the city's prosperity ushered by the efficient management of its business, co-operative as well as educative concerns, and by its industrial plants, Satellite towns, Metropolitan, etc., have to be introduced, under the control of Regional Planning. Moreover, the suburban areas have to be so developed as can accommodate residential groups for the habitation of a proportion of the surplus population that are presently, or to be gradually, employed by business and industrial enterprises. The business and industrial establishments should, as a matter of course, found their sub-centres in the satellite towns. Satellite town will serve the Central City as its sub-centre and take advantage of some of its big business organisations and institutions as banks, courts, colleges, museums, theatres, etc. The Satellite towns and the Central City will thereby combine to form a regional city in one sense of the term. Each town has to be self-sufficient and self-governing. There should be at least five miles of agricultural and farm land in between each satellite town laid around the central city for providing foodstuff and other necessities for which Dairy, Poultry, Animal Husbandry, Horticulture and Pisiculture have

to be maintained. Each large garden should form a small decentralised unit of cottage industry. Electric Power House will enable small workshops to be functioned in such garden sub-towns.

Another type of garden town is generally planned for a population of from 30,000 to 50,000. It is surrounded by an agricultural belt, held in trust for the community. In replanning England, after the last War, agricultural belts are being provided along road sides for growing more food which is a national demand. Such belts have already been laid along the sides of certain existing roads. If, later on, the garden town is subjected to abnormal increase of population and civic activity, a garden suburb is usually added to it. Such addition should so carefully be planned as not to create congestions of transport and public services. In a properly planned garden town, additional residential zones and additional mills or factories help the completeness of the scheme till the town becomes entirely self-sufficient. Bloomsbury Square and Bedford Square of England should inspire planner of garden towns.

Merits and Demerits of Good and Bad Planning

Fast dangerous automobile traffic road running outside the town, and feeder ones for the use of local traffic, as well as the streets for slow moving pedestrians, if correctly planned, disallowing Ribbon Development and conforming with the regulations of segregating different types of traffic as are in vogue in Western countries, can prevent traffic congestion and accidents,

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and can save the traffickers from perpetual wastage of time, energy, vitality and money which they would be subjected to, had they had to use round-about longer roads to reach their proper destinations. In 1930 the losses which were subsequently considered could be prevented by correct planning programmes in America were estimated as :

(*i*) Loss of time due to congestion of traffic Rs. 30 lakhs per day in New York. (*ii*) The annual loss in the United States at Rs. 180 crores through accidents due to bad alignments and defective road planning. (*iii*) Chicago spent 2 crores annually in rectifying initial town-planning mistakes. (*iv*) 40,000 people were killed in accidents and lakhs were injured in the year.

In Great Britain, 1930, the number of casualties and wounded pedestrians, due to bad road planning, came to seventy thousands and two millions respectively. India's record of road accidents is said to be the highest in the world. In U. S. A. there are 13 death every year for every 10,000 cars, in Enland 31, while the figure for India is 93.

Half-hazardly situated huddling houses circumambulated by badly aligned roads and lanes, and surrounded by ill-administered water tanks, ponds, quagmires, pools of mud, make the future improvement of the locality difficult and expensive; also the rainy season renovations of local roads and drains troublesome and expensive because of their being circuitous and lengthy. In contrast to the baneful effects of badly planned Railway high roads and culverts which have in places hindered natural drainage of the countryside, and caused the growth of Malaria, well-laid high roads,

well-laid drains and sewers do not counteract the natural drainage of the country, conform with all the conditions of sanitation, and disallow the formation of permanent incubators for the breeding of pathegonic micro-organisms detrimental to the health of the people. Correct locations of civic structures with proper space relationship that include all house groupings, settlements of the poor, etc., adjusted in planned relation to each other, with planned communication, facilitate quick easy movements, and enable quick civic social activities, commercial and business transactions, in organised economic manner, and enable the busy masses to conserve energy and get rid of irritating mental impulses, which they might be subjected to, had they had to undergo unnecessary physical endeavours and exertions due to walking longer distances along round-about roads. Good planning could prevent the generating of foul air which usually contaminates a grain market yard of the city, in the midst of sultry crowded godowns, overcrowded by marketing people engaged in weighing and business transaction. It could correctly adjust the location of the yard and the efficient placing and construction of shelters and sheds for accommodating hundreds of bullock carts with their impatient drivers and weary animals, and for giving facilities for getting water and for cooking their foods, preventing the young trees, tender plants and the wire-fencing from getting damaged by loaded carts. The doctor with his stethoscope and medicines, the health officer with his charts and printed regulations, can never prevent spreading diseases when the citizens and mill-

labourers are compelled to live in insanitary dingy houses in ill-planned 'bustees' and slum areas unhygienic and inartistic. The choking clouds of dust emanating from badly aligned, badly constructed, badly maintained roads, caused by every passing car and carriage, scatter asunder millions of disease-bearing germs to affect passers-by and inmates of adjoining structures, that sprang up in the pernicious process of ribbon development, to the utter disappointment of the physicians and sanitary inspectors. The work of the medical profession is being frustrated and neutralised by the lack of planning artistic sanitary environments and sanitary buildings, and buildings for health as a fundamental aim. *Prevention is better than cure. Instead of multiplying the erection of hospitals and dispensaries the Government ought to strike at the root of the evils, and prevent the occurrence of epidemics and diseases by sanitary town planning with well-planned houses executed by trained personnel.* The concentration of research workers is painfully distracted if they are to work in summer months in the metallurgical and technological laboratories, in Jamshedpur factory and Nagpur University court, furnished with walls of glass, similar to those found in England and America, for which the architects are mainly responsible. The writer speaks from personal knowledge. Instances might be multiplied. In the absence of a good knowledge of the blessings of rational plannings, the people who are at the helm of *Free India's National Government are unable to realise what a tremendous recurring loss India has been subjected to in multifarious ways. This loss could never occur had the*

countrysides been correctly planned and developed by trained planning architects thoroughly acquainted with Indian conditions and problems.

Aesthetic Planning : source of Health

In earlier stages machines were worked by water power drawn from river currents or waterfalls. Machine-made goods, much easier in production and cheaper in price than the handicrafts of the village craftsmen, easily ousted the latter from the market. But machines needed houses adjacent to the water power. So the rivers were dammed to divert their waters into lakes to which mills were adjusted by the villagers. Then Steam Engine appeared to replace the water-driven mills. Steam could be used both for pulling and driving machines. Railways transported mill-made and machine-made articles to different places and brought back large food stuff to the villages. The food enabled the manufacturers to expand their mills or add new ones and to erect numerons cottages for housing increased labour brought from outside. These caused industrial villages to grow into towns and, gradually, into congested cities. Those unplanned, sprawling, shapeless towns and cities of smoke, filth and horror, crowded by human figures with pale ghastly features were, later on, disliked by the industrialists themselves. And they themselves were primarily responsible for the creation of suburban settlements marred by ribbon developments.

The utilitarian and economic compliances of a building are indispensable. But in the construction of the building, a proper reference to its sanitary and æsthetic

values should not be lost sight of. The claim of beautiful structure must not be ignored. It is the old question of making life not only possible but also worth living. All of us should feel that it is improper to build a house of God, a lecture hall, or living and office room, or a labourers' colony which is banal and does not evoke a noble healthy emotion. Our civil engineering and architectural students are never taught that their 'creation' should be outward manifestation of an inner joy and inner vision;—that a great building is not a soulless thing but has a voice with which it silently speaks to spirits that are sensitive to its influence generation after generation. A building with a sublime architectural feel about it, has a direct influence on the mental, spiritual as well as physical health of those who live in it or spend most of their time in it. The cathedrals of America, it is said, inspired notorious gangsters and free-booters to welcome the order of monkhood. As a sort of experiment the murderers were quartered for some time in the environments of beautiful churches and taken regularly to attend eccleciastical functions. The latent message of the eloquent stones and church organs became irresistible to them.

That a building has a direct influence on the mental, spiritual and psychical health of those who live in it or spend most of their time in it is a well-attested fact which need not be estalished in this connection. An eminent European professor once remarked about the Calcutta University Library Building (then in the ground floor of the Darbhanga Buildings) that it required only two small rail lines on either

side to make it an appropriate godown; a criticism which has the fullest support of those who had to spend the greater part of the day in that building, and of the professors and students who used that most depressing, ill-lighted, ill-ventilated hall which was then used as the reading room. Some of the clerks and others who worked downstairs had to contact frequent illness, lose eye-sight, and few were forced to make speedy exit from the world. Physical and moral health is the social function of building and the final criterion by which it has to be judged. A good sound building regulates harmony between human body and natural environments so as to ensure optimum health.

The atmosphere of a building is the most important thing for the well-being of those who dwell in it. No greater contrast in styles is seen than in the Red Fort at Delhi, where side by side the old structures of the Mogul Emperors—their audience chambers, their private apartments, their rainy season pavilions, their gardens and their houses of prayer—are to be found P.W.D. structures, barracks for soldiers, store houses and offices. Once while the author was in Delhi, a Superintendent of the Archæological Department told him that the British troops garrisoned in the Fort often complained of being uncomfortable in their quarters although the Engineer and Doctor had under Government auspices, and with the most up-to-date view in the matter, sought to do their best in creating a commodious well-ventilated set of barracks. The average British soldier is one of the most stolid of persons and would be the last to be moved by consideration of imagination or romantic association (except of course in

a mildly sentimental way with reference to things and persons in his own homeland). The British soldiers even felt the contrast between the P.W.D. structures and the buildings of Mogul Emperors, with their marbles and mosaics, to be too much. They felt a sort of depression which they could not explain. It was the atmosphere of the Mogul palaces and pavilions that irresistibly made them feel dissatisfied with the atmosphere in their own barracks, the best care of the Sanitary Engineer and the P.W.D. Architect notwithstanding. The subtle influence of architecture and decoration on the mind is recognised even by doctors. A room with proper æsthetic decor and a nice picture or two in it, a piece of statuary or a fresco or a Japanese kakemene, makes a man feel happy within himself, often without his knowing why, and in this way it draws out his best powers and even helps to prolong his life. An environment enlivened with elegant architectural forms, appropriate decorative symbols and sympathetic colours, harmonising with smiling Nature, never fails to generate psychological stimulants on the mental health of the citizens. Civic environment obviously influences the life and growth of the citizens.

Indian students have been reading Ruskin and trying to understand the spiritual quality of Gothic architecture. They are given to read the architectural principles of European structural composition. But, they cannot realise that their own South Indian temples, Guzrat mosques, Orissan and North Bengal shrines and Mogul palaces and masouleums were also objects of great art with their own messages to tell. The

majestic Siva temples of Ellora (Hyderabad) and Elephanta (Bombay), 8th century A.D., were chiselled out of living hard rocks as tangible monuments of the greatest Hindu Renaissance to put to shades the glories of Amaravati and, even, Ajanta. The intense devotional fervour and abandon that find expression in the Tamil hymns (which thanks to labours of Pope and others are accessible to all in an English garb) find expression in the great structural and rock-cut temples of the South. The chivalry of Rajputana and the stern military virtues of the Rajput people are best expressed in the Community planning and in the Feudal architecture of Rajputana; and the culture and the urbanity and eclecticism of the Indo-Persian court of the great Moguls had its adequate reflection in the glorious architecture of the Mogul mosques and palaces ; while far in the out of the way Himalayan Nepal, the mysticism as well as the tropical over-growth of a mythological symbolism, which characterised later Buddhism in India, find eloquent diction in the Nepalese temples with their wealth of wood carving and bronze artistry. The hymns of the Jain philosophy were frozen in the marbles of the Dilwara. Crowning the peak of the Aravallis, the temple stands as a symbol of metaphysical speculation of a great spiritual civilization.

Soul of Hindu India

Every one who has seen Kasi (Benares) presenting her magnificent crescent-moon sweep of *ghats* and stone palaces above the pale blue water of the sacred Ganges when approaching the town by slow moving train, from Mogulsarai junction, along the Malaviya

Bridge, must confess the thrill of enthusiasm that fills him at the marvellous sight of Indian architectural splendour sanctified by the soul of a great religion. He must confess that few things are equal to it in beauty and sublimity. The majestic bend of the mighty river and the miles long range of the *ghats*, palaces and temple spires, the whole dominated by the twin minarets of the Beni Madhava, is a scene divine, never to be forgotten. And more one views the scene at close quarters from a boat plying up and down the river, a journey which at Baranasi should have the sanctity of a 'parikrama'—the more does the stupendous majesty of the *ghats* grow upon him. Like every man he feels that it is the picturesque river front and the narrow, winding, shadowy paths of the mysterious city flanked by old edifices and shrines, big or small, of small size stones or small thin bricks, that make the real Kasi (Baranasi, Benares) although for a long time it is being treated by the city-fathers of the locality as step child. It is also the old *mahallas* (wards) thereabout guarded by 'Ganes,' 'Kal Bhairav,' 'Kali,' 'Durga' and other gods and goddesses, that breathe the spirit of beauty and piety and of romance and art.

Looked upon with wonder and veneration, Kasi is considered by the foreigners as the "Gateway to Heaven." The architectural texture of the massive edifices and temples has attracted for hundreds of years millions of visitors from all quarters of the globe. The high level of culture attained by India has been adjudged by civilized men and women coming from different corners of the world through a mere glance at the *ghats* whose spiritual message of universal

inspiration took but one minute to appeal to the human instinct. No amount of studying the epics and classics, 'purans' and histories, became necessary for them to form their judgment in respect of Indian civilization manifested through Indian architecture and Indian regional planning.

The author may recall the enthusiasm that prevailed on one section of American audience in the course of his delivering a lecture on Indian Art and Culture in the Roerich Museum of New York, when he expounded the significance of Baranasi. The very name of Benares created a mild sensation in the cultured public assembled therein. Suggestions came from one corner of the hall for one special lantern lecture which could encompass in itself all aspects of the eternal glory of the city beautiful. Two ladies had in their houses various slides illustrating the architectural continuity of the *ghats* which they took during their visits there and which, they suggested, could be lent for illustrating the proposed lecture. One old gentle man possessed moving pictures of not only the entire range of the *ghats*, in the shape of a cinema film, but even of those of particular streets and lanes, and temples and *mahallas*, which could overall enable a somewhat comprehensive idea of the city wonderful. Kasi is considered to be the cradle of Hindu Civilization. It is a clear index to the cultural, spiritual, æsthetic and constructive achievement of the nation. It is a mighty citadel of Hindu national aspiration—Hindu National Planning.

The Hiudus fill their imagination with noblest spirits when they ponder over the ancient days of Baranasi. 'Visveswar' the almighty Father and Governor of the

universe; 'Annapurna' the supreme Mother who nourishes and cherishes in her bosom her countless very dear ones. 'Buddha' setting the Wheel of the Law in motion at the *Mrigadava Aranya* (Deer Park) of Sarnath about 583 B. C.; 'Agastya' performing his *yajna* (sacrificial rites) in the heart of the primeval forest. The bazar and temple of 'Viswanath' mark a spot where once was a forest which used to be roamed by Vedic seers and the present *yajna-kunda* (sacrificial hearth) in the said temple has existed from ancient days when and where the Aryan sages offered '*homa*' with the chanting of '*rijks*' (vedic hymns). In this Kasi the emperor Harischandra sacrificed his all to fulfil his promise to Viswamitra. The Jain Tirthankara Parswanatha taught his disciples squatting around. Sankaracharya propagated his doctrines of monism Advaitavada) as a direct challenge to the philosophy of Buddha and the cult of devotion (*Bhakti*). Tulsidas composed his sacred verses (*dohabalee*) at 'Sankatmochan' which has brought religion to millions. Sri Ramkrishna Paramhansa observed that the Siva with trident in hand approached every dead body brought there for cremation and whispered into its ear the holy Name Siva thus leading it to salvation. All these and many more associations the Hindu mind instinctively feels when the magic word Kasi is uttered. Kasi is a national asset and a spiritual treasure, an outward expression of Hindu religious devotion—Hindu Soul.

In Buddhist legends and Buddhist texts there are numerous references to Baranasi and Kasi. There is hardly any narrative in the 550 stories in the 'Jataka' which has no allusion, direct or indirect, to Kasi—the

most antiquated sacred city of "Madhyadesa" (Eastern India). Immediately after his Enlightenment under the Bodhi Tree at Bodh Gaya, Buddha declared Kasi as the most congenial place to germinate the seed of his new creed. Thus He declared: "I shall go to Kasi; there I shall beat the drum of immortality for the benefit of all living beings." Millions of Buddhists throughout the Buddhist world view Kasi with awe, wonder and reverence. The cosmopolitan atmosphere of Kasi always welcomed religious preachers, debators and scholars of all schools of thought including those who did not subscribe to Brahmanic ritualism and sacrifice. In fact it was a most sympathetic soil for the development of many conflicting cultures. Long before the Christian Era Buddhism and Jainism vied with each other and exercised a great influence on Hinduism, or more properly Brahmanism.

But in a stricter sense of the term Kasi was the chief store-house of Brahmanic culture enriched with Vedic and Upanishadic alliance and, consequently, the central authority on questions of Hindu faith and Hindu cultural ideas. Since pre-historic ages its eccleciastical cultural establishments attracted Sanskrit scholars, philosophers, student-devotees and pilgrims from all parts of India. Charmingly situated on the magnificent bend of the mighty Ganges on the lap of Nature's forest ever green as it was, the town of Kasi, even at a remote age, flourished as a famous seat of Learning, Art, Commerce and Industry. It was a typical example of steady continuous growth of an ancient Indian town dominated by religion. Recent archæological excavations conducted at Rajghat have established its flourishing

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existence at least in the Sunga period of over 2000 years back. Gupta arts have been unearthed there at their best quality. Two Asokan pillars exist in Baranasi. Very old stupas of Pauranic period scatter in the open places and *ghats*.

The preservation of its pristine beauty and personality with its deathless associations in a state of cleanliness and spiritual environment becomes a sacred duty of extreme civic national importance. Anything which makes the place ugly and insanitary should be avoided with the most scrupulous care. The old character of the city along the Ganges can certainly be maintained with good sanitation including the judicious diversion of the drains which now discharge straight into the river and pollute the health-giving sacred water. Such sanitary improvements without much damaging the æsthetic character of the ancient city, have been possible in ancient quarters of Edinburgh, Naples, Paris and elsewhere that have existed from the Mediæval days of Europe. Open spaces in places of Kasi with large shadowy trees so far enhanced the beauty and maintained sanitation of those gigantic masses of masonry. But the open spaces are now being built up. The buildings are rising above the older ones to command the *ghats*. Present day bad taste and garishness are seeking to besmirch the charms of the older structures. Baranasi attracts people from abroad through these old buildings only and not through the architectural monstrosities of the present day. And even when one thinks in a sordidly commercial spirit one cannot fail to realise that the charming river front is one of its valuable assets. The

City Fathers there owe it to their own as well as to India and the human world to keep the river front serene and beautiful. It will be very easy to insist upon all new structures overlooking the river to be in harmony with the entire character of it and to refuge sanction to buildings the elevations of which will not harmonise with the architectural environments of the *ghats*. The newly constructed ugly structures can also be renovated to look beautifully Indian in conformity with the architectural environments. This sort of compulsory confirmation to the prevalent character of architecture for the sake of beauty and self respect as an essential item in civic life is not a new thing in municipal administration. It has been done elsewhere in many a city of the Occident, as has been mentioned, like Edinburgh and Naples when necessity arose. In a place like Kasidham where building craft is not dead and building tradition is still alive, it will be no hardship to the house-building public if it were trained through a school of Indian architecture in good taste and nationalism.

As a matter of fact house-building in old Baranasi was a tangible result of successive experiments through creative centuries with the indigenous materials available, climatic requirements and sociological outlook of the local people. That it was quite suitable for healthy comfortable living and working has been judged from historical data and statistical figures available as to the health, longivity and activity of the older generations dwelling there, which were remarkably better than those of the local Indians there to-day. The health and sanitation of that city, only 25 years ago, was proverbially excellent. The air of the crowded

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'Bangalitola,' 'Ganesmahalla' 'Chawk' and 'Kachurigali' was salubrious. It is known very well that, except the last epidemic which devasted the city ten years ago, it is the Cantonment area of modern origin with modern modes of sanitation that has been subjected to the attacks of epidemic, pestilence and hot winds, the old portions of the city remaining comparatively free from the same. Indiscriminate application of ill-assimilated Western methods adopted by thoughtless sanitary engineers has been responsible for this tragic affair. Apart from this what the writer presently intends to draw attention of all lovers of the beautiful to, is the continued injury to the splendour of the city and the river front that is being done by the erection of so-called up-to-date structures with cast iron pillars, ugly cast iron railings, corrugated iron verandah roofs, severe concrete pillars and other inconsistent architectural elements of hybrid and garish, foreign types.

In the course of surveying the sights of the *ghats* and the honey-combed piles of palaces and edifices on the back ground from the Asisangam *ghat* up to the Raj-ghat bridge what a wonderful panoramic succession of great buildings above magnificent flights of stone stairs presents itself ! During the boat trips that the author made on the light blue river year after year Baranasi with her smiling face and her hoary traditions, with her divine grace and her enchanting expressions, mildly tempered with the mystic spiritual power which she exerts over those who are not insensible to the eternal verities, seized him with a grip as it were, and made him once more realise to the fullest extent of his being her wonderful magic and power to make man heart-whole.

Many were the wistful hours he spent while sailing up and down the river, while he watched also the stream of life along the lofty stone *ghats* and the shadowy palaces and the 'Manmandir' observatory above them, laughing and chattering, chanting and praying, begging and chaffering and at the same time losing itself in worship and meditation; a colourful ever-moving kaleidescope of life on the great river with the halo of its pale blue waters as an eternal back ground, beckoning us to lift ourselves up to a higher life standing as a symbol of things eternal and unseen. Wistful hour it was because the life that was going on the *ghats* was something which had a supreme beauty which was all the more beautiful because the people themselves were not conscious of it. How he would like as in his childhood days to be once more like that boy who was splashing water in the river and disturbing others laughing at their angry looks and scorning the anxious protests of his timid mother. How he felt inclined to take the dust of the feet of that elderly lady with an ecstatic face like that of a saint who was squatting on a stone slab, in a quiet part of the *ghat* so profoundly motherly in her clean *namabalee chadar* (wrapper) stamped all over in red with the names of the gods, telling her beads with her eyes half-closed in the joy of prayer as if she was the very embodiment of beauty and wisdom. How he liked the honest-old sublime face of the retired Government official, for evidently so he was, probably a clerk in some Government office in his day, who was reading his prayers, a face full of benignity which would look into the eyes of Death without any qualm. And what a nice picture was found in the expression of the attendant

(*panda*) seated under his split-bamboo-basket-work umbrella, the handsome middle-aged Brahmin that he was with his heavy yellow turban and his gentle smile as that of a courtier in the Durbar of the Maharana of Mewar, while he held out the looking glass to a customer who had just finished his bath in the Ganges and whom he just decorated with sandal paste on his fore-head in addition to watching over his clothes and belongings, and all for half a copper. And no less interesting was the face of the fat merchant (*bania*) enjoying his massage from his stalwart young barber, a face which in grotesque good humour is worthy of the attention of a mediaeval Gothic sculptor.

The life was all there,—there was the pulsation of the national life—but alas one feels too sophisticated for it. Yet all this is so living and such an intricate part of indian national cultural corporate existence. One would wish for it a continuance for ever. The sights that would greet one in the afternoon are no less beautiful, and redolent of spiritual tranquility. The entire spiritual atmosphere of Baranasi seems to one to be of praise to the glory of the Lord of the Universe as chanted in the Vedic hymns during the evening *arati* (ceremonial waving of light before the image) of the Lord Viswanath in his Golden Temple. Here man yields himself up in a prostration of faith and abandonment before God the Father who nourishes and protects; and before God the Mother who loves and cherishes ; here he shows his gratitude to God in Nature by a loving devotion to Mother Ganges, who has made India what she is by her life giving waters, and whose lapping waters are cooler than any mother's bosom, and sweeter than any

mother's lullaby. Baranasi indeed with her deathless associations is an asset in Indian national life which India cannot afford to lose. Baranasi is still LIVING, as it was in the ages long gone by, as an ever-living example of Indian Human Planning.

Such human planning that incorporated all branches of human science, as mentioned above in details, was scrupulously treated by the 'Shastras' which were largely developed in the 5th and 6th century A.D., during the reigns of the Gupta emperors, when the North and South India became united, socially, spiritually and intellectually, on a strong national platform, transcending all demarcations—political, sectarian and linguistic.

During and after the Gupta period, Hinduism steadily developed to a theological maturity. In the course of the development it absorbed congenial elements from the tenets of Jainism and Buddhism, propagated by such two great teachers as the Vardhamana Mahavira and the Gautama Buddha, in the middle of the 6th century B.C., rationally modified from the rituals observed by their ancestors (Vedic Brahmans), particularly in respect of Vedic sacrifices and caste distribution. The life of the *sanatan* Hindu, then, harmonised with the Laws of Nature administered by planetary conjunctions. Astral injunction, even to-day, is being followed by the Hindu and the Buddhist, and more strictly by the orthodox Jain anchorite who, endowed as he is with lofty morality, devotion, discipline, sacrifice and a facuity of self-realization, often adopts austere penance, with a soul hallowed by the doctrine of *Ahimsa* (non-injury) to all sentient moving and non-moving beings comprising all living creatures

and earth, water, fire, air and vegetable beings that overall compose the vast organism of the cosmic Nature in its entirety.

Consistently with the rigid life principles of the peoples of successive ages, every architectural planning in India was made to follow 'Shastric' canons as an ordered system. The plan was so devised as to neutralize the disruptive effects of earth, water, fire, air, etc. The architecture had to follow the organic principles of biological growth and rocks and crystals. It was not accidental, therefore, that the *Mahasthapati* (architect) was given unique honour, ranking with that given to the *Viswakarma*, in the domain of creative pursuits.

"In the beauty of flower and sunset" observed H. G. Wells, "we have some limitations of what life can do for us, and in some works of plastic and pictorial art, in some great music, in a few noble buildings and happy gardens we have an imitation of what the human will can do with material possibilities. Our race will more than realise our boldest imaginations, it will achieve unity and peace, will live in a world more splendid and lovely".

Should entire Indian empire be replanned to make it a splendid and lovely land to live in, the Regional Units with all their towns, villages, ports, etc., have to be co-ordinated to, and interwoven with, one another in the form of a net-work by means of copious communication, with due allowance for migratory expansions consistently with trails of invention, and otherwise, so that, ultimately the entire sub-continent of India can be judiciously framed, rationally transformed, into a homogenous entirety, creating overall a complete picture of

healthy prosperous Indian life and human society at large. That will make a real National Planning for India in the truest sense of the term.

Rational planning to meet the material needs of the people has been possible in the West. It has been easy for the expert Americans of the Tennessey Valley Authority to function a large scale publicly administered enterprise for the realization of human and natural resources, unhampered by partisan interests, on technological and economic methods, in terms of land, streams, electricity, forests, minerals and of factories and jobs. A broad program of river control, designed to harness America's water-power resources for the benefit of large portions of the population has emerged as an integral part out of socio-economic planning. Embracing the four-fold objectives of flood-control, irrigation, navigation and generation of electric power, the plans are based on an integrated system of regional development. The planners of India's River Control and Regional Development projects could learn much from America's achievement. The achievements of Russia are marked by the reclamation of the mountainous tracts of Tadjik, rainless deserts of Turkmen and Uzbec S.S.R. Those once-abandoned arid zones, like the Tennessey Valley, have been thoroughly irrigated, in places fitted by largest Hydro-electric plants and transformed into lands of plenty and beauty.

With all their dazzling socialistic programs, Russia has failed to usher eras of social harmony and security. Russia's planned economy, however strongly it may have inspired other nations by its external grandeur, internally generated an extreme violence, if one is

correct. Russia's titanic constructional achievements in respect of irrigation, canals, dams, electric supply, etc., enforced regimented labour at below subsistence levels. Russian planning, where the ends were fixed and the attainment of the goal restricted by time limits, appeared to be sources of oppression. The scheme called for centralized control with the machinery of centralized methods of production through violence. Germany and Italy followed the footsteps of Russia.

India and New Order

In every planning in Free India, the rhythm of the Nation's life and the life principles of Man, regulated by the astral injunction, should be harmonised with the Laws of Nature which enabled creation of her biological and organic masterpieces. The ordered system of the universe (cosmos)—the Nature external and internal—is an emanation from the supreme Force, the eternal *Brahman* permeating the Truth of cosmic existence, the Beauty of creative life.

The National Planning of the Emperor Asoka (Dhammasoka) in India of 2000 years ago, was strongly synthesised on such cosmic order. Profoundly did it harmonise with the manifestations of Nature, animated and inanimated, as authenticated by his humane legislations and philanthropic inscriptions, and embodied in the sublime architecture and sculpture sanctifying the eloquent stones of Sanchi and Bharhut. The planning of Varnasramadharma (caste system) by the Hindu psychologists and sociologists adhered to this very order in the intellectual, ethical and spiritual growth of each individual who functioned as an ardent member of one

of the community-groups that composed overall the organism of the entire society. Each and every member in the Society enjoyed opportunities of self-realization, self-development and self-expression, both secular and spiritual. That spirit of integrated, intensified, social harmony balancing ethical doctrine with moral discipline, became so vivid, so realistic, in ancient Indian life and living, because of that. Historians cannot dispute that. That social organisation in Upanishadic Hindusthan which treated every man, every living being, the fauna and flora, as members of one vast universal society, has gradually been disrupted under alien political subjugations in the last three or four hundred years.

The inner spiritual life of ancient India that stimulated and fostered the socio-cultural organism of the Hindu nation, long after the Vedic and Upanishadic ages, remained intact under the Gupta, Pala, Chalukya, Chola, Rastrakutha and Rajput monarchs. The system of grouping Four Castes (law-maker *Brahman*, military *Kshatriya*, commercial *Vaisya*, and labourer *Sudra*), with its inherent integrity and catholic outlook, never had to face acute hostile factions. It allocated specific duties, assigned definite scopes, for each group to work in unison with other fellow groups for the benefit of all. It maintained a rhythm of harmony between Life and Spirit. Consequently, Indraprastha and Ayodhya, Pataliputra and Vijaynagar became full of virility, prosperity and potentiality. This is not an utopian belief. Their glories have been recorded in epics and literature and corroborated by foreign travellers, envoys, ambassadors, and by the seekers of Indian wisdom

who came to this country for the purpose of study during successive ages.

After dark ages of unrest, the world seems to enter upon a new phase, new order, in which wisdom and action, love and charity, trust and toleration, art and science are to combine in order to unite and exalt all peoples into one social entity, one human society. India throughout the long periods of her history covering over 5000 years, has cultivated most assiduously the psychological discipline, *yoga*, to enable man to emerge out of his primary ignorance for the attainment of true positive knowledge. After successive failures of materialistically great, scientifically trained, Western Powers to achieve world-peace,—inter-social harmony and inter-racial security,—India with her treasures of cultural spiritual wisdom and her soul force is being looked upon to guide the formation of a New Order for the liberation of the seething suffering masses. Mahatma Gandhi has heralded the beacon light to guide the Man to discover the greatest land marks in the domain of international co-operation through the realm of philosophical and socio-religious thought and action.

There happened certain great periods in the History of Civilization which witnessed Unity of Culture—when man's conceptions harmonized with the external world, when human spirit was not condemned to go its way alone, when reality never meant struggle for existence. Such unity of culture shaped Athens under Pericles, Rome under Augustus, Ujjaini (India) under Vikramaditya. Human life manifested splendours as was possible then. Greater splendours are looming large on the distant horizon across the dismal abyss of

surrender, behind the dark glooms of despair. They are awaiting the dawn of a new spiritual awakening.

Philosophy, Art and Science—intuition, mystic impulse and imagination—will open up new spheres of the unconscious. Those spheres will conquer the interference of the outer world, external material power. India under Asoka the Great enacted such spiritual conquest over half of Asia.

In the first part of Asoka's eventful career the law of his life directed his energy towards the attainment of material satisfaction through his external power, as he followed hedonism. That part of his life terminated in the physical conquest of Kalinga. But, in the second part, the law of his life directed his soul force towards the spiritual evolution of expansion through subordinating such physical passions and material satisfactions to the realization of sublime spiritual objectives, as he followed the universal Religion of Love. It terminated in his corporal surrender to the expansive mood of divine life. The humane civilization he planned and built up, eventually, established, firmly, the communion of the day to day avocation of the individual human with his spiritual pursuit for the benefit of humanity.

By expounding the Message of the Vedanta before the World Parliament of Religions in Chicago, Swami Vivekananda enunciated India's spiritual yearning the pursuit of which by mankind could, as he perceived, usher in liberating the oppressed humanity. Unable to bear the insurgence of its relentless aggression on the Soul Internal, the eternal shrine of serene tranquility, Mahatma Gandhi cried a halt to the demon of the

Power External. His radiant compassion has been growingly dispelling the egoistic arrogance of Violence. He has kindled Truth-Consciousness for purifying the Society at large and unifying the seekers of Non-violence under the ensign of Peace perpetual. His self-less Self unfolded its latent divinity by subjugating the agnostic environments through invoking the supreme blessing of "*Raghupati Raghava Raja Ram : Patita-Pavana Sita Ram*"—the Central Force of cosmic Life, the eternal Spring of Love Divine.

"There is being revealed in different spheres of activity" observes S. Giedion, "an affinity in methods of approach, which, though developed independently in each sphere, still underlies all what is significant in our thinking and feeling." Yes; it is so. There will surely grow a true hidden unity, a secret synthesis in the philosophy and art and civilization that is in the process of evolution. We are slowly, surely, advancing towards ethical civilizations in which the intellectual and moral principles, the modes of psychological solidarity, will contribute to the spontaneous collaboration of groups and peoples with a view to generate simultaneous progress in every domain scientific, artistic, moral, religious, juridical, technical, economic and political. Which is the best easiest approach for such international progress, surmounting the barriers of bigotry and intolerance, one has the liberty to question. How is that progress possible in Modern Age under Modern Material Civilization that sordidly stands for political domination and ruthless exploitation? How to save Nature's children from the iron fist of Frankenstein? How to save them from the Atom Bomb of Progress! That is

the crux of the problem of the agitated world. Its solution is essential for world harmony.

In this age of racial recrimination, religious bigotry and social intolerance when, in the garb of progress, rank materialism and barbarity have been threatening to undermine all that human culture has produced in past ages, India's contribution to the evolution of a New Order, through one World-Architecture and Human Planning, which is in progress, will be emblematic of the coming human family, and help in its advent. It is for the India to take a prominent part in working out a cultural synthesis worthily representing the fundamental unity of humanity and of all their faiths, so as to engender lasting peace and harmony on earth. And architecture which is a mature fruit of the tree of civilization, an embodiment of human passion for truth and beauty, is the fittest among all the fine arts to give form and inspiration to the spirit of international fellow-feeling. India's spiritual universal outlook on life, reflected on and symbolized in the human-architecture of to-morrow, will guide the liberator along the way to the solution of the problems confronting human society which at present are menacing man's very existence. That such spiritual outlook is a need of the times is amply evident from the fact that Sri Ramkrishna Paramhansa who taught the world religious toleration and universal amity has found his way into the hearts of the peoples of all lands.

Architecture may be considered as the culmination of the cultural aspiration of a nation. It has always marched with the progressing culture of the ages, giving shape to evolving human ideals and faiths. One may

question, what is really the ideal of the civilization on which the Human Planning and Human Architecture are to be based? The answer is: the coming civilization with New Order has to be evolved out of a cultural synthesis of the human aspects of ethics and æsthetics, science and art; it has to create and foster a Lordless Society of all human beings which will look to the world under the canopy of the eternal blue as a peaceful abode, Home, for all; all its members will enjoy equal rights, equal privileges, equal status and equal amenities of life without any distinction whatsoever.

Architecture is a great agency for evoking the spirit of international brotherhood. The ideal of brotherhood is more readily advanced through art, because thereby we experience both inwardly and outwardly the evolution of the Commonwealth of Beauty, whose inheritors we are. The evolution of humanity and civilization culminates in Beauty and Art. There is no question that Beauty and Art are the great factors in the new conception of life with the ideal of service to humanity. They are the prime movers in the approaching evolution. Seers like Tolstoy considered art as the means of ending hostility and warfare.

The evolution of the New Order rests on the cornerstone of Knowledge and Beauty. The religion which ceases to enunciate a sterile dogma and foster a spirit of destructive bigotry, the philosophy which establishes a truly intellectual communion between man and nature, and the science which correlates human activities with the spirit of the melody of Nature would contribute to international brotherhood and inter-religious harmony in the approaching New Order, when wedded to the

intuitive humanization through Truth and Beauty, which is Architecture and Art. A noble architecture has always succeeded in creating a current of ideas, sentiment and collective comportments, which persists and develops and becomes a social reality, a moral force—the source of action and collective life.

Art has a profound relationship with Religion, relating as it does to the fundamental experiences of the human soul in its communion with God. Architecture to be true to itself must be characterised by that æsthetic and spiritual appeal which frees the mind of the onlooker from the shackles of materialistic influence. It must, as Ruskin observes, kindle the lamps of Sacrifice, Truth, Power and Beauty. In past ages Architecture was employed as one of the principal means of worshipping God and Nature, and it stood as an embodiment of Devotion and Sacrifice. Had it catered merely to the material needs of man for leading a mere barrack life, adhering to conditions of economy, utility, commercialism and industrialism, the glorious architecture of bygone ages in which every nation takes pride would never have reared its head. The New Order with its roots in humanistic traditions, fed by congenial materials brought from the Orient and Occident, may be expected to build deep a strong foundation for a hall for all the arts—spiritual, impersonal, inter-racial, eternal—the arts which are life-givers to men's souls, wearied now with the artificialities and bitterness of modern scramble.

In pre-historic India and China, Krishna (the hero of the Mahabharata) and Lao-Tzu pondered one Human Order as recorded in the 'Bhagavad-Gita' and the 'Tao

Te Ching'. Their immortal preachings followed the path of Truth, Love, Righteousness and Benevolence. Krishna dictated each human heart to visualize in its own self the microcosmic image of the *Viswa-Rupa* (the epitome of the Universe—Cosmos, Microcosm). The method of spontaneity produced the heaven, earth and the terrestrial things. Knowing that the Nature's method of spontaneity could never be resisted by mortal man's power, the ancient sages of *Bharat-Varsa* (India) regulated it for the evolution of Culture. They taught that the Laws of Nature were communicated by such symbols as Sun, Moon, Stars, Music and Art. In their symbolic spiritual form the sensible and invisible combined in upraising the soul of the seeker of Truth and Beauty, and in harmonising all organic creations with the symphony of Nature—with the blissful Light of the Life Divine.

India has immense treasures, material and spiritual, to offer to the International Temple of Art and Civilization for the evolution of a New Order. The New Order will seek to establish a synthetic view on Life conceived not statically but dynamically as a progressive Evolution of Humanity other than a preposterous Revolution for material lowering down. That cosmic Humanism will liberate the system of humanism concerned with man's material interests from its limitation of outlook, its restriction of service, by finding man in the Universe and the Universe in Man.

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BIBLIOGRAPHY

Vedic Index by Macdonell and Keith.

Jatakas (English Translation).

Mohenjo-Daro by Sir John Marshall.

The Indus Valley Civilization by Ernest Mackay.

The Jaina Antiquary (The Central Jaina Oriental Library).

Arthasastra of Kautilya (Translated by Dr. R. Shama-shastri).

Essay on Architecture of the Hindus by Ramraz.

Summary of the Manasara by Dr. P. K. Acharyya.

Town Planning in Ancient India by Dr. B. B. Dutt.

Hindu Civilization by Dr. Radhakumud Mookerjee.

Life in an Indian City (The Calcutta Municipal Gazette, 24th November, 1934) by Dr. Sunitikumar Chatterji.

Magadha Architecture and Culture by Sris Chandra Chatterjee.

Architect and Architecture: Then and Now by Sris Chandra Chatterjee.

Village Planning by V. C. Mehta.

Greater Hyderabad by M. Fayazuddin.

The Outlines of History by H. G. Wells.

History of Architecture by Banister Fletcher.

Cities in Evolution by Patrick Geddes.

Garden Cities of To-morrow by Howard Ebenezer.

City Planning by Harold MacLean Lewis.

Town Planning by Thomas Sharp.

The Little Town by H. P. Douglass.

The Annals of the American Academy of Political and Social Science, May, 1944.

Space, Time and Architecture by S. Giedion.

Note on Post-War Planning in India (The Calcutta Review, August, 1944) by Albert Mayer.

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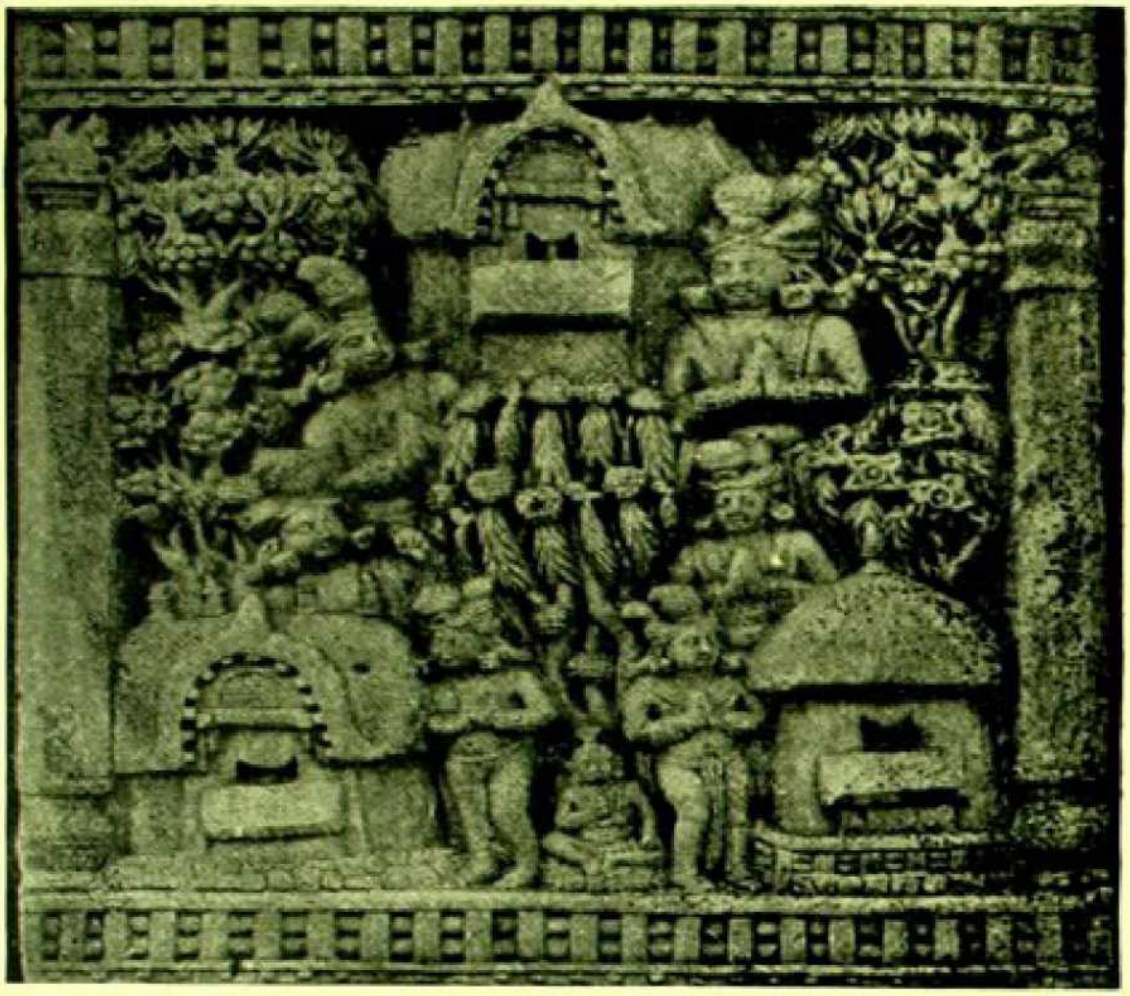
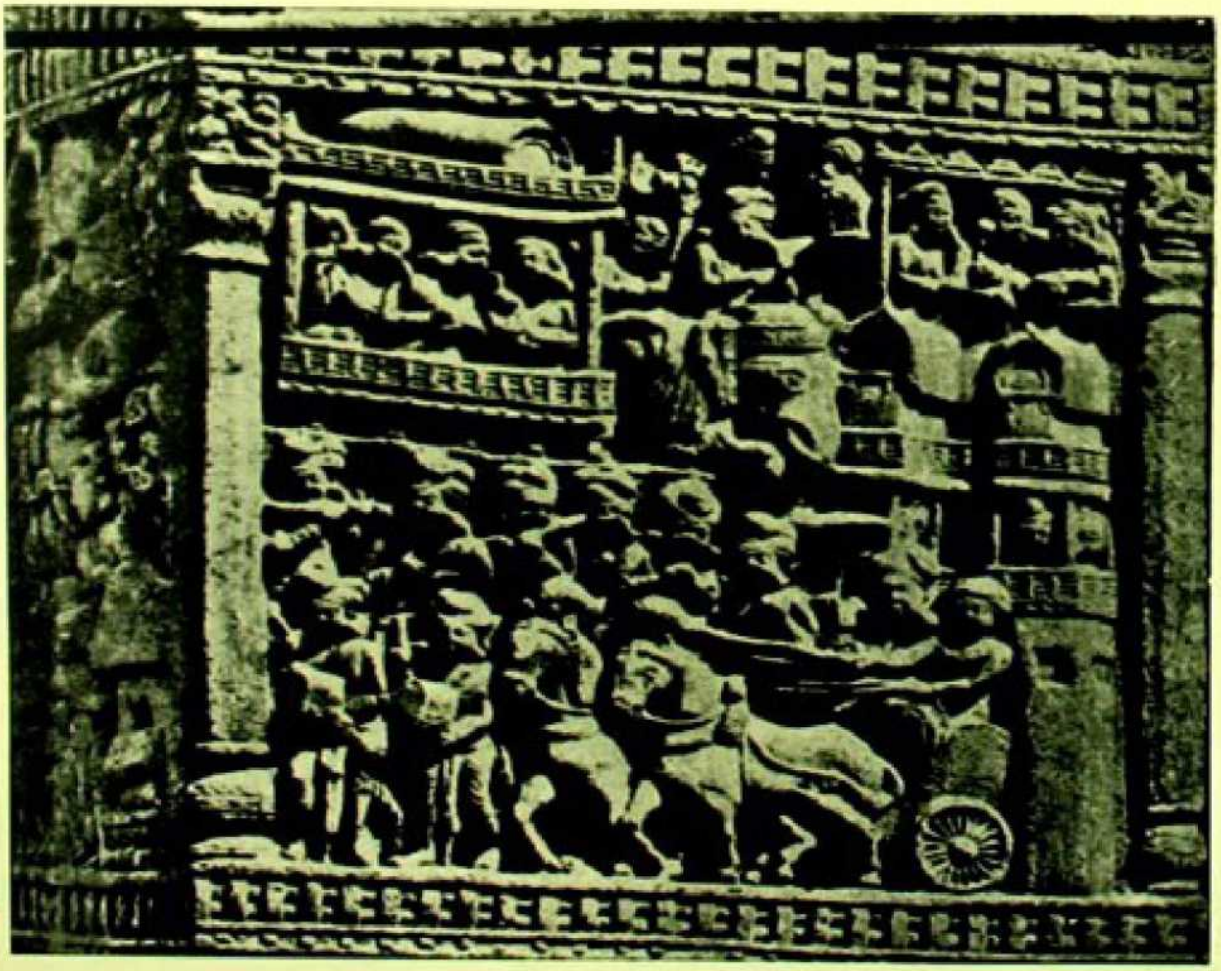


FIG 1. Ancient India : Rural Architecture



EXPLANATORY NOTES ON ILLUSTRATIONS

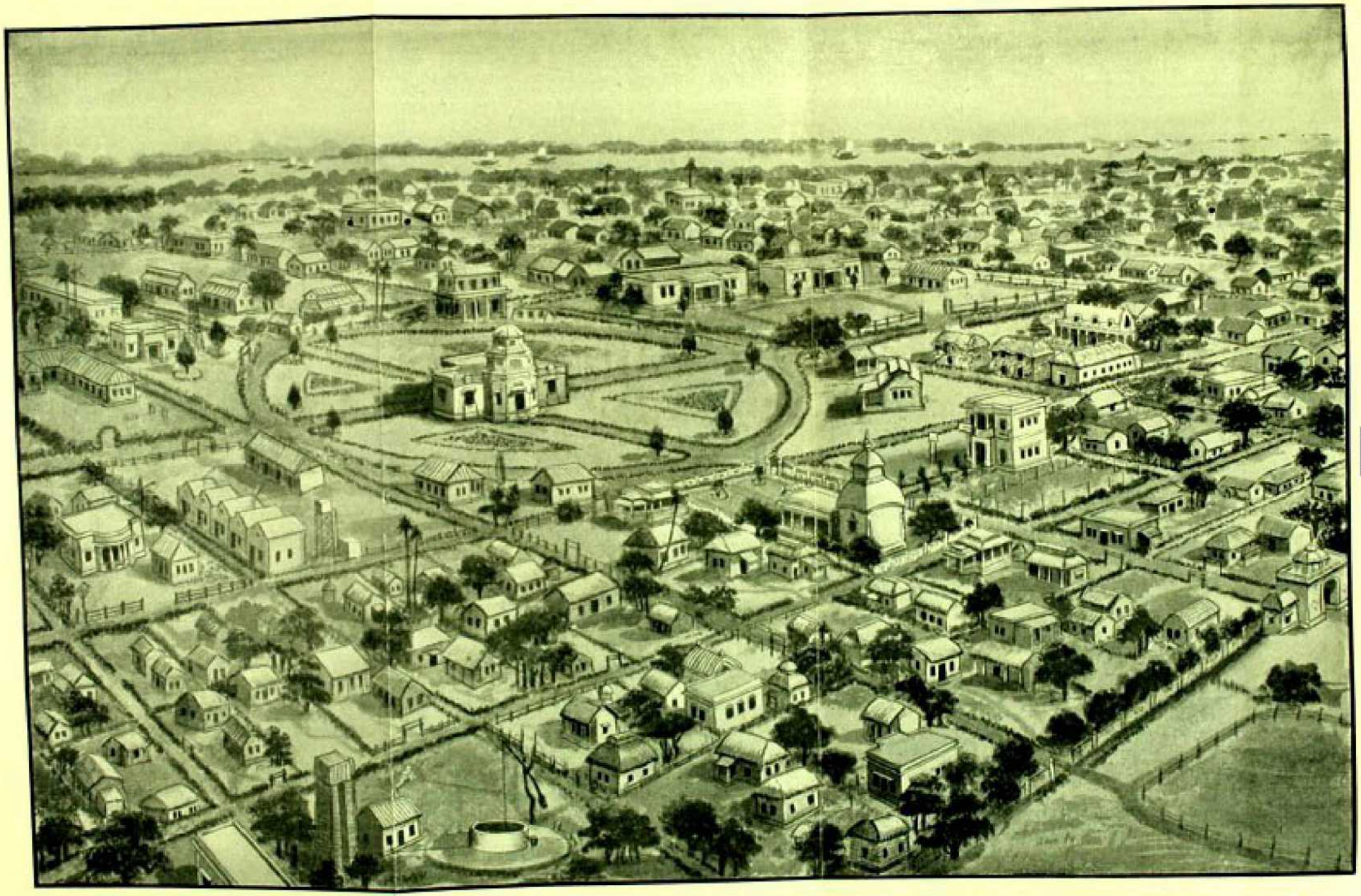
PLATE I. ANCIENT INDIA

Primitive huts with a single door opening for each were circular in plan devised on the models of trees the trunks of which had hollows which the birds used as their nests. Thatched cottages, in ancient India, with their central posts, and rafters and purlins of branches and twigs, supporting roof coverings of thatches,—represented trees with trunks and outstretched branches covered by leafs. Architecture owes its origin from the trees. Ancient Indian treatises on Architecture have partly substantiated that argument by mentioning "Brahmakanda" pillars with four faces, "Vishnukanda" pillars with eight faces and round "Rudrakanda" pillars which recall the trunks *i.e.*, "Kandas" of the trees being synonymous with the shafts of the pillars. The jambs of doors were termed as "Sakhas" *i. e.*, branches, because branches of trees were utilized in their construction. The lintels termed as "udambara", were made of the durable fig wood. Bamboos enabled construction of the curvilinear roof which, afterwards, were mostly replaced by cut timbers. The horse-shoe-shaped "chaitya" arches, dominating the cave temples largely built and popularised during the Buddhist period, followed ancient traditions. In order to protect the wooden pillars of the houses and monasteries from destructive insects they were rested in earthen pots. The "pot and foliage" shaped bases of the Buddhist and Gupta pillars of stone had their origin from the earlier wooden ones protected by the pots. Fig. I. pictures the abovementioned type of circular hut, thatched cottage, "Vishnukanda" pillar shaft, "chaitya" arch, and pillar having "pot and foliage" base. It also illustrates the novel form of a

vaulted roof, over the structure behind the severe balcony, that subsequently developed into the form of the "vesara" roof of Nalanda, and also into other shapes indicated by the "Vaital Deul" temple of Orissa, "Telika-mandir" of Gwalior, "Ananda Pagoda" of Upper Burma and elsewhere. The "Vishnukanda" pillar high and heavy, seen in the plate, represents a lotus stalk on "Kumbha" *i..e*, a water pot like what is observable in Nasik, Karle and other places in India and Greater India. Later on, they influenced the designing of "Surangdar" pillars of Mediaeval Rajputana and of the pillars erected in the "Chandimandapa" of ancient Bengal. As the picture shows,—nestling among the fruit and flower bearing trees of mango, fan-shaped palmyra, bignonia and champaka,—there peeped unassuming cottages sanctified and beautified with religious symbols and spiritual motifs. That rural architecture of ancient India influenced the subsequent civic architecture of Pataliputra, Kusinagar, Mathura and other famous cities. In fact the Himalayan forests enlivened by Vedic and Upanishadic lores and doctrines inspired the design for, and supplied materials for the construction of, civic dwellings and temples as well as rural and urban plannings and developmets in ancient and mediaeval India.

Ideas which inspired Indian planning architects to formulate their regional plannings, and rural and urban architectural styles, can be researched from important documentary evidences in contemporary archæological remains—only two instances of which existing in Sanchi have been illustrated herein—side by side with the references and descriptions recorded in the epics, puranas, agamas and other important literatures including the "Vastuvidya" *i.e.*, the treatises on Indian building engineering and architecture.

Indian residential structures were planned, specified and standardised in various types and styles, with varied



Drawn by Panchugopal Banerjee

INDIAN VILLAGE OF TO-MORROW

Architect : Sris Chandra Chatterjee

forms and storeyed-heights, in alliance with topographical character of the physical nature of the regions, and, in accordance with the building materials available in the countrysides. Zoning and alignment, orientation, astrological and aesthetic distribution of private and public edifices, allocation of open spaces, parks, tanks, recreation centres, orchards and reservoirs, principal and feeder roads and tree-planting, landscapes, etc., were treated unequivocally. Regional architectural unity was maintained, zealously, in laying garden villages and garden cities in pre-British India.

The canons of Architecture marched with politics. The *Arthasastras* were invariably connected with "vastu vidya." Some writers on archiectural planning were also authors of the *Arthasastra*, *e.g.*, Vrihaspati, Sukra, Visalaksha, etc. Kings like Nagnajit, Sesa and Haya Naga, dealing with politics, were also constructive architects. Chanakya was an architect-planner. The progress and downfall of architectural planning fully synchronised with the rise and fall of the political powers of the ancient and mediæval India, from the Age of Asoka to that of Auranzeb and of the British Power in India. Moreover, the planning of rural and urban areas and house buildings always remained incorporated with Religion of noble lofty aspiration.

PLATE II. INDIAN VILLAGE OF TO-MORROW

The typical form of a 'Prastara' or 'Chaturmukha' village in ancient India, protected by boundary wall and moat, was rectangular in plan with four sides facing the four quarters and divided into four wards by the two main streets which crossed each other in the centre and terminated at the four principal gates surmounted by watch towers. In the centre of the village, overlooking all the four cardinal points, there stood a Temple of the Four-faced 'Chaturmukha Brahma,' the Creator, who

watched over the people in all directions and protected them.

The plan of the conjectured Industrial village, for 3,000 persons, illustrated by this plate, has been developed from that of a 'Chaturmukha' type. The industrial village in ancient and mediæval India used to be a self-sufficient economic unit wherein artisans and handicraftsmen worked conjointly for supplying the needs of all the villagers and in return got a share of the produces of the land. Such villages are yet found in India. The village guilds regulated hours of work, supplied necessary raw materials and exercised peaceful control over the industrial workers. The suggested village is intended to function as a typical Feeder village to stimulate and foster the prosperous life of the rural populations of the surrounding villages each of which, so far as possible and desirable, will be utilized as Agricultural Village, Commercial Village, etc. Such well-organised Industrial Village is destined to elevate the socio-economic conditions of the allied ones. Village industries should respond to the practical repercussions of a sociological philosophy.

The problem of housing in rural areas should be tackled by an agency which should work in active co-operation with the other agencies established for the betterment of agricultural and cottage industries, controlling over and treating a group of co-ordinated villages as one unit,—the unit having its well-planned and well-situated marketing or distributing or such like focal centre. Each village, of course, cannot be thoroughly self-sufficient. Some amenities provided by the Feeder village will, therefore, be shared by the entire group of villages under its control, whereas some amenities will have to be provided separately for each village within the group.

The Feeder Village illustrated here will strive to meet the economic and social requirements of the adjoining

subordinated villages. In its centre there will stand a Temple with Community Hall and Social Training Centre. Radio and Petrol Stations, Fire Brigade and Police Chowkie are shown in the four corners as flanking the circular road around the Centre. School and Gymnasia, Military Training Centre, Industrial workshops, Co-operative units, Banks, Hospital and Dispensary, Sanitary Training Centre, Welfare Centre, Ambulance, Overhead Reserve Tanks and Wells, Museum, Temple, Dharamsala and Club, Post office, etc., have been provided in the village plan. Cinema House, Carriage and Bus Stands, Play Grounds, Cattle Stands, Cattle troughs and ponds, Cemetery, Burning place, Public Bath, Experimental Farms, etc., have been located outside the village boundary. Green Belts in the form of orchards and medicinal plants and herbs will surround the model village. Open lands have been kept reserved to be utilized for the future developments of the village.

General amenities pertaining to a group of villages and those amenities absolutely essential for a particular village—which are common to all the inhabitants without distinction—should be provided by the State. The Provincial Government should provide and maintain main communications, cross drainage works, etc. The organization, construction and maintenance of approach roads, field tracks, temple, mosque, church, school, hospital, gymnasia, "Lok Sevak Sangh," radio, fire-extinguishing appliances, etc., will be undertaken by the Local Authority such as a "Panchayat" or "Mandal" by raising its own funds and by its co-operative labours as formulated by the Mahatmaji,

Experimental yard for testing and formulating building specifications with the considered use of building materials locally manufactured, and erection and demonstration of model houses and cottages in suitable

regional, rural, styles have to be arranged by the Provincial Government. Each and every village should store building materials as well as agricultural, medical, sanitary and other urgent and important requirements of the villagers.

PLATE III. VILLAGE GATEWAY (TORANA)

The walls of this structure can be entirely built in puddled mud or with bricks in mud or lime mortar. Constructed properly with traditional specifications, mud-built houses will surely last one hundred years or more. There exist numerous double-storeyed houses of mud sixty to eighty years old. In the case of the illustrated one, well-seasoned Salbullah pillars can be used to support the roof trusses of seasoned Sal, bamboo and palmyra, cut and dressed to specific shapes and sizes, over which thatches can be laid. The octagonal roof-truss will support the umbrella-shaped dome thatched properly and crowned by a well-burnt pitcher made of clay, turned up-side down.

Well-seasoned bamboo sticks or canes will serve the purpose of window gratings. Obviously there should be no necessity for indenting expensive iron, steel and cement. Even nails and screws can largely be avoided by using wooden pins.

The entire wall surface of the exterior will be rubbed hard by trowel and wood with coarse-grained sand plaster, and finally punned with specified colouring ingredient, leaving the surface rough throughout. With the growth of moss and lichen thereon, after successive rains, the structure will appear colourfully charming in harmony with the luxuriance of Nature. Two small pieces of moulding figuring conventional birds, scrolls of flowers and stylated forms of ornamental plants and creepers, in bold relief, will decorate the structure. Earthen

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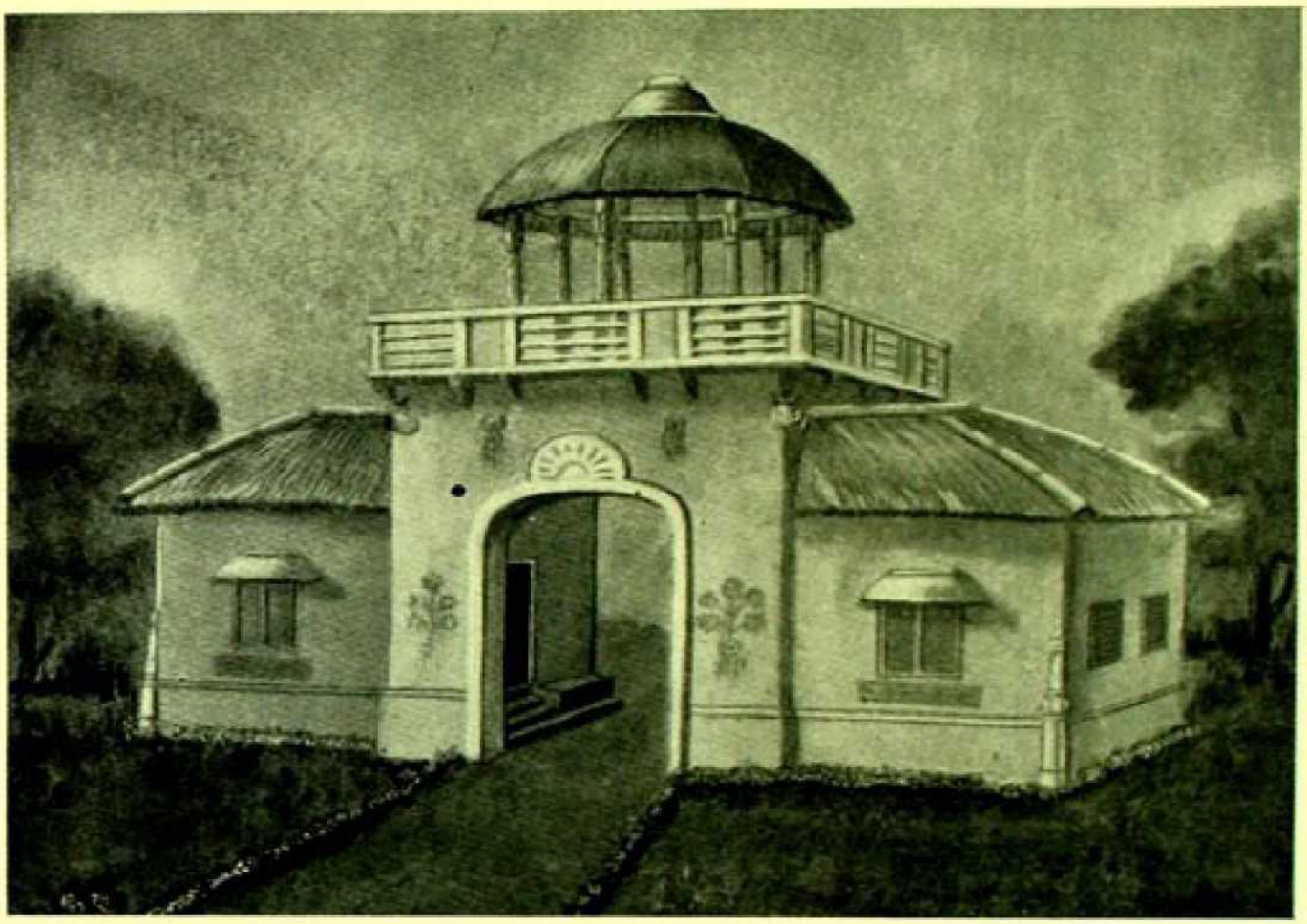

FIG. 1. Village Gate: Torana

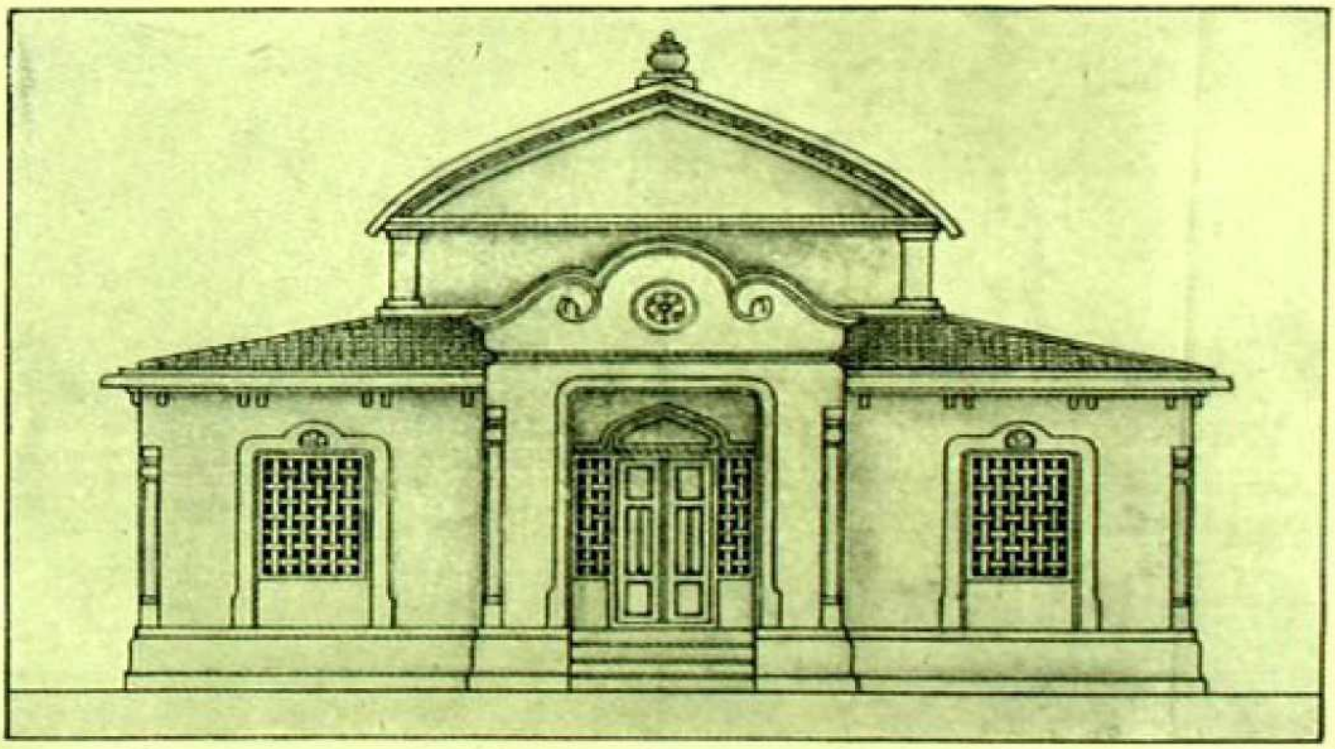

FIG. 2. Cottage

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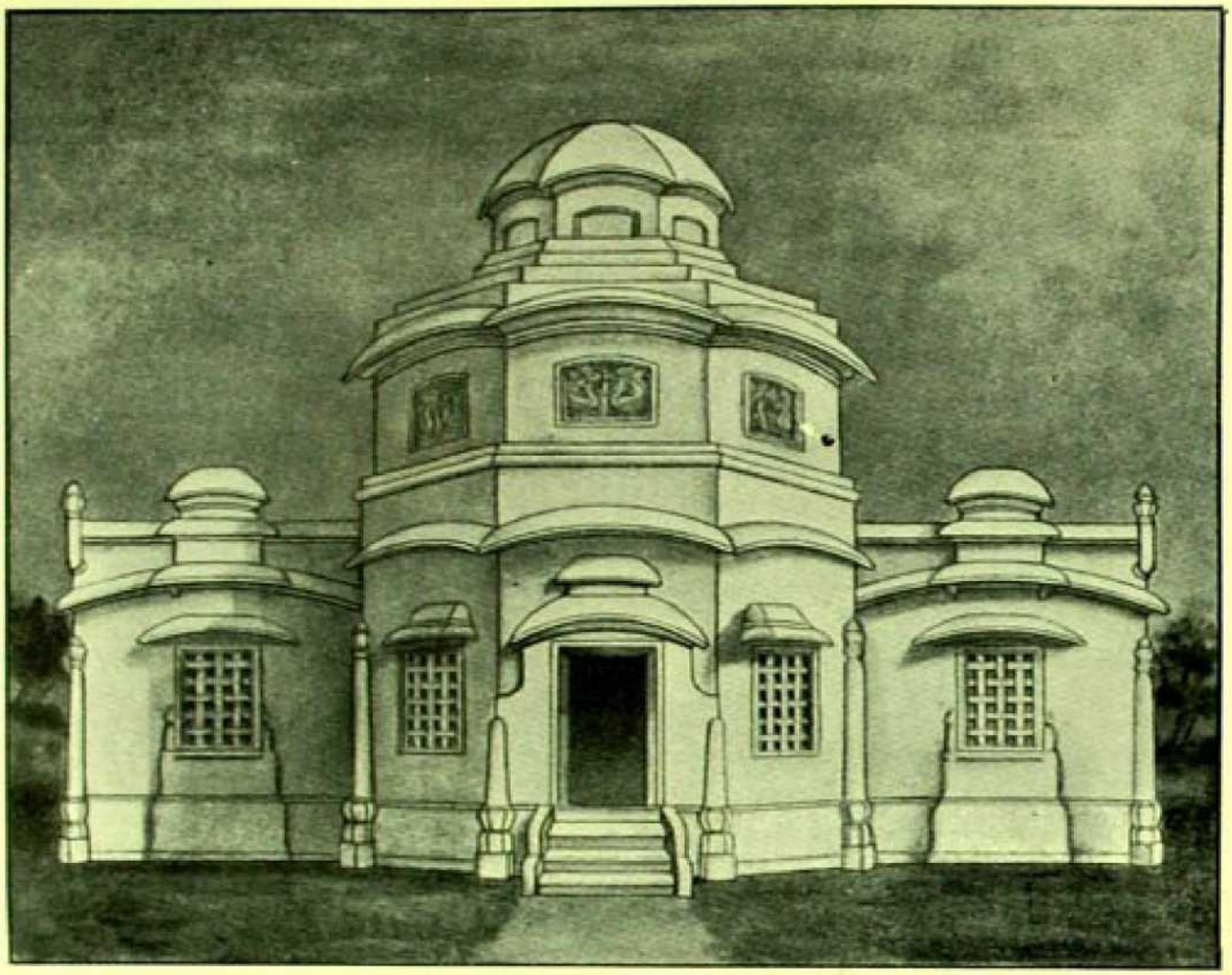

FIG. 1- Village Community Hall

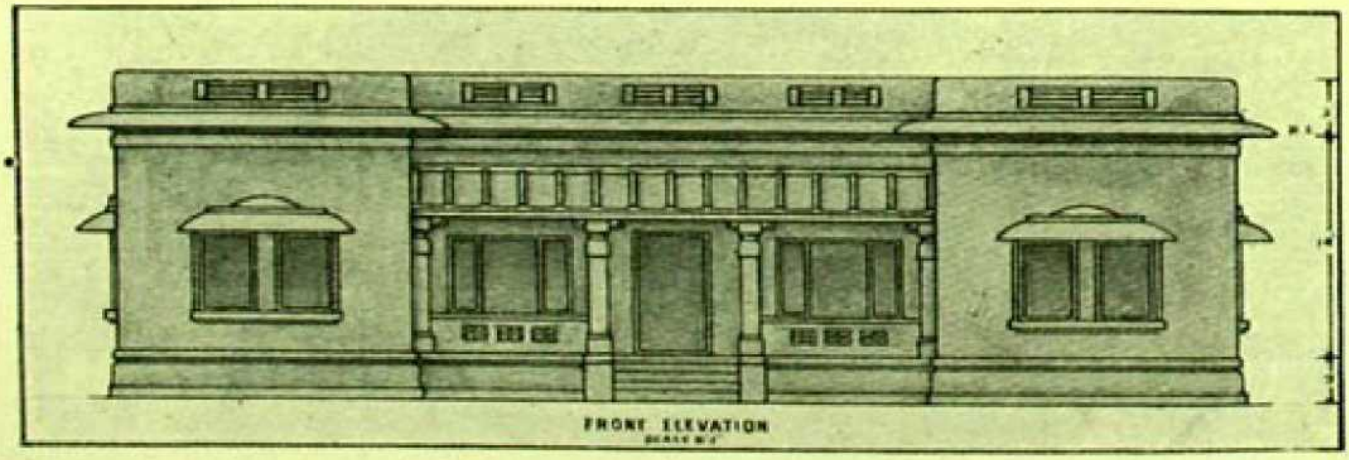

FIG. 2. Inspection Bunglow

pitchers will be suspended from the corner eaves to house birds and pigeons. The children will watch their movement. During ceremonial occasions the umbrella-shaped pavillion on the topfloor will be used as a Concert Hall wherefrom musicians will conduct their instrumental music of Indian melodies and, through Loud-speaker, will recite national anthem.

PLATE IV. VILLAGE COMMUNITY HALL

This building has to serve the purposes of:

(1) Village Assembly Hall, *i.e.*, "Panchayat," or "Mandal," (2) Temple, and (3) Centre for Social Service, *i.e.*, "Lok Sevak Sangh" *as outlined by the Mahatmaji just before leaving this mortal world.*

As was liked by him, costly imported *industrial products* such as cement, iron, malthoid; valmoid, ruberoid, frosted and stained glass and a lot of other things advertised in papers will not be necessary for its construction, equipment and maintenance from economic, utilitarian and hygienic points of view.

With due regard to local traditions, present conditions, habits and customs of the people, the design attempts at a new style of rural architecture, sympathetic to Indian soil and culture, for awakening the subdued Life Force of the Suppressed Humanity.

May noble feeling be revived and perpetuated, with all the desparate urge for liberation and freedom of expression, by the Divine Light and the Eloquent Form that are yet to come. They will come. In this preliminary design they are being just hinted by the spiritual symbols and motifs and the rhythmic curves emphasising the personality of the civic structure attuned with the eloquent vault of the heaven, illumined by the opalescent glow of the radiant Light of Wisdom springing from the "deepa-stambhas" (lamp posts) buttressing its strong-pointed sharp corners.

PLATE V. RURAL TEMPLE GATE

It will be flanked by two stout pillars supporting "kumbhas" (jars) full of "amrita" (nectar) and "padmas" (lotus flowers). It will be crowned by a "chaitya" symbolized by the "panchajanya sankha" (conch shell) whose function is to relay the immortal message of protection and benediction that was proclaimed by the hero of the Mahabharata, Krisna, in the battlefield of Kurukshetra. Ritualistic emblems, "chandmalas," and lamps of compassion will be carved in low relief on the door shutters which will be beautifully preserved by periodical oiling as is done in Burma, Siam, China, and not by the costly modern paints of soul-crushing vulgarity and inferior durability.

TEMPLE WALL AND FOUNTAIN

Along the grassy stretch by the river-side,—between the wavy wall enclosing the compound of the river-side small temple and the pale-blue expanse of the rippling river,—under the deep shadow of the spreading lofty Banyan,—the "Panchayat" (Village Assembly) will at times meet on a mud-built, copper-coloured, quaintly painted, low platform—covered by an octagonal, pillared, pavillion—with a view to transacting the socio-economic civic affairs of the village community. The carters of the loaded bullock carts will take rest for a while in the midst of a wayside flowery grove not far from the temple compound and adjoining the river. To quench their thirst as well as for the use of the Members of the Assembly some of whom are their brothers and sisters,—"the Gomukhi-Dhara" (fountain) of the Himalayan antiquity and proverbial celebrity, fixed on the compound wall, will remain eager to welcome all with her life-giving waters. Connected with the overhead tank, as seen in the picture, water pipes will irrigate the temple garden behind the wall and work

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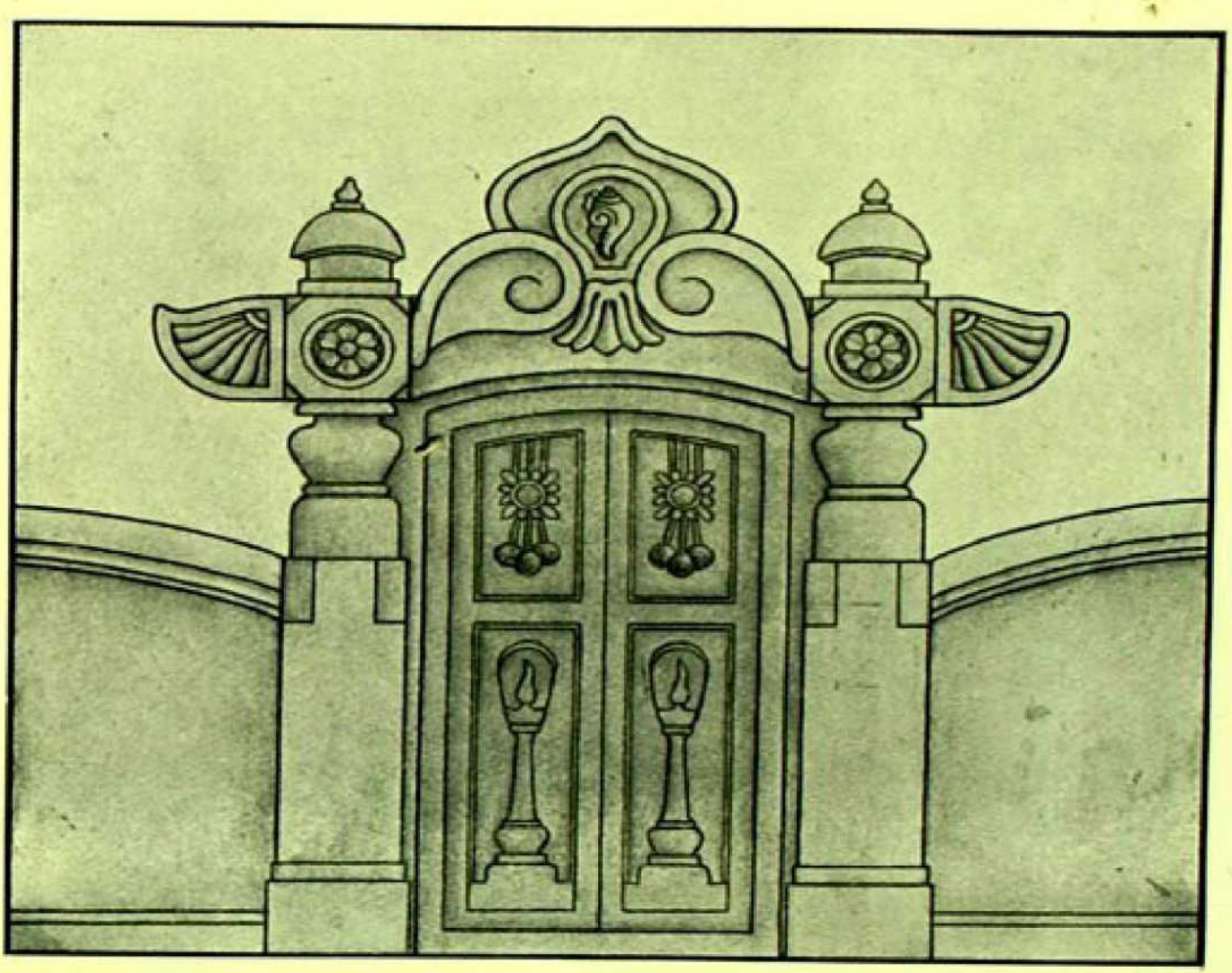


FIG. 1 Rural Temple Gate

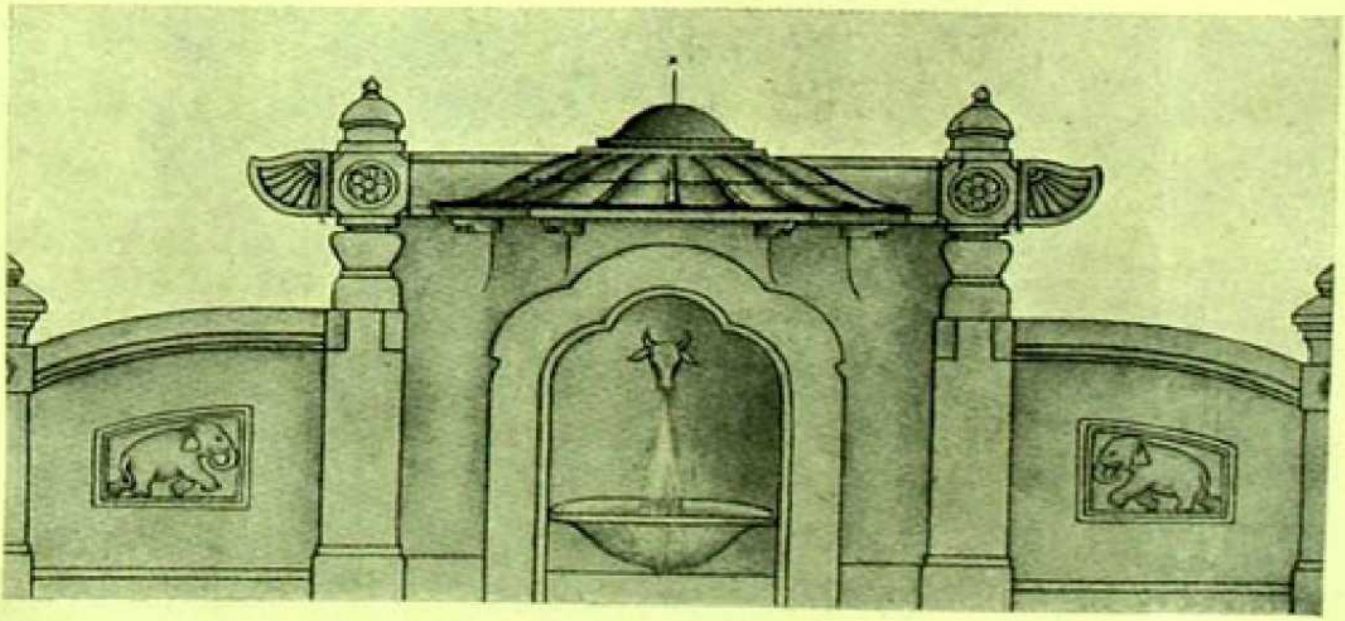
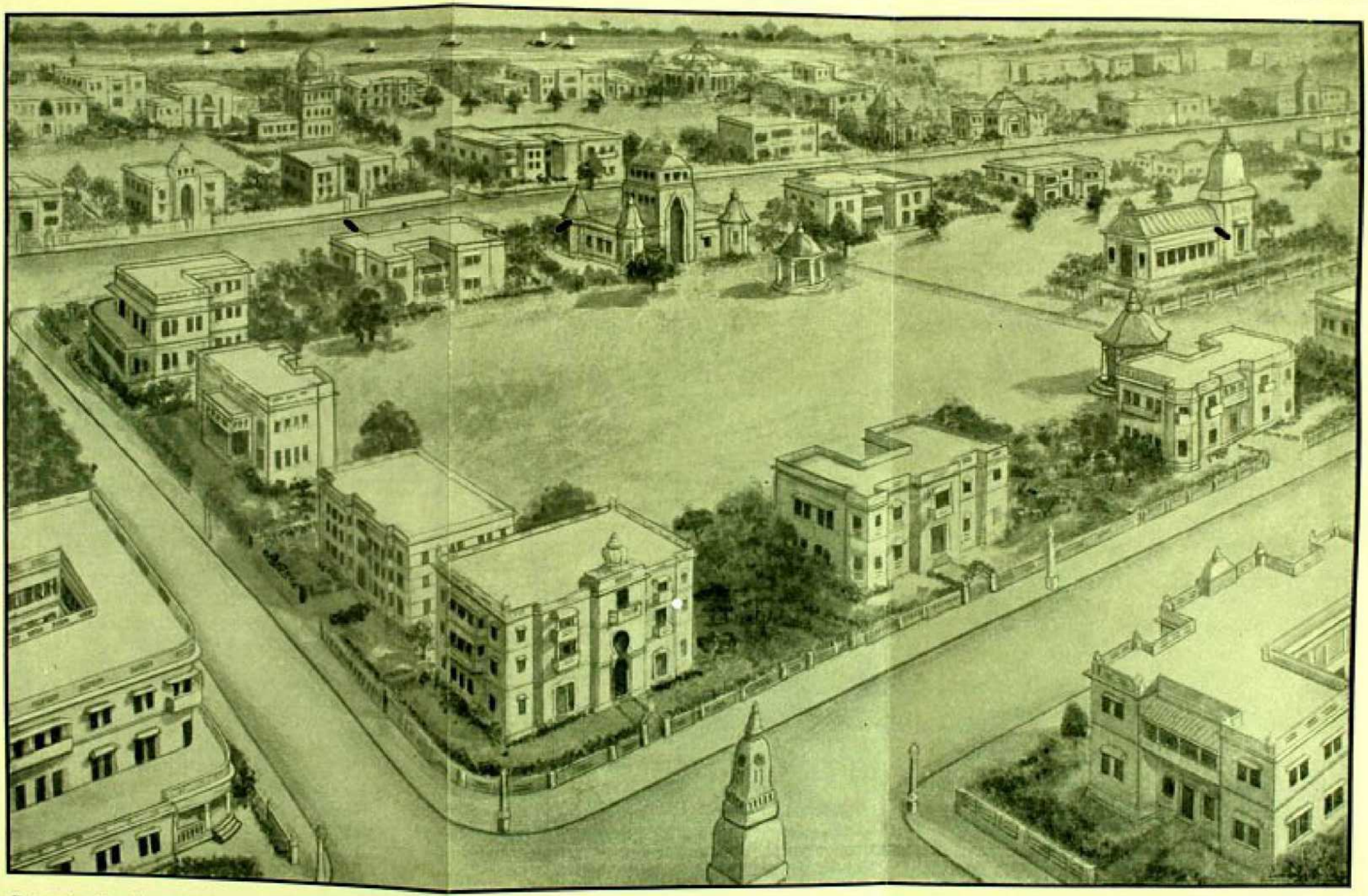


FIG 2. Temple Wall and Fountain



Drawn by Panchugopal Banerjee

INDIAN TOWN OF TO-MORROW

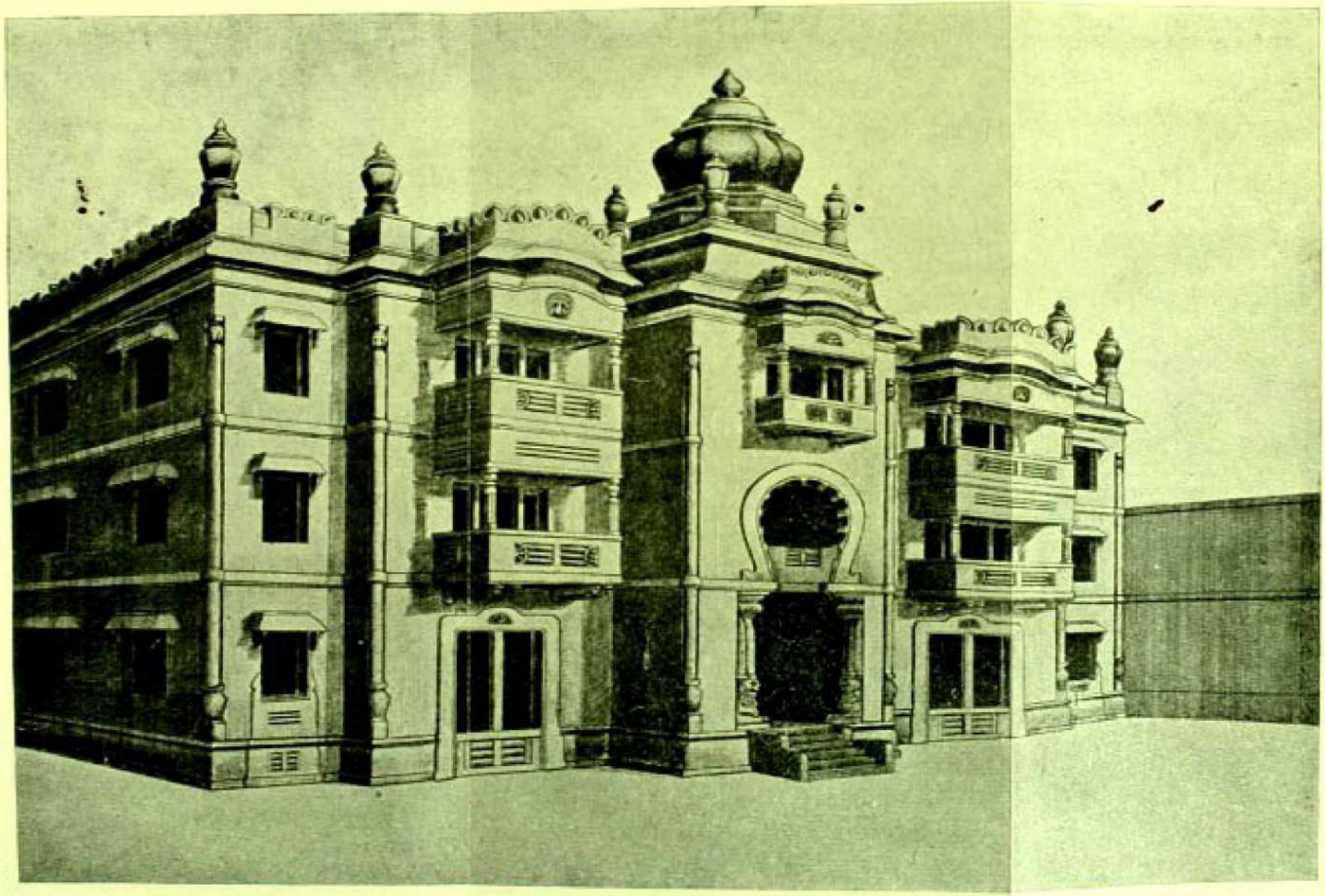
Architect : Sris Chandra Chatterjee

sociological composition, so the conjectural town has been designed out of an understanding of social requirements and their rational adjustments and, at the same time, solving the problems of an organic inter-relationship between all aspects of functioning the town life. In location as well as in architectural treatment the distinction between the principal and subordinate features has to be maintained and yet the structures have to follow a common grammar and composition of the architectural language of a neo-Gupta style of Indian national architecture. A sublime spiritual fervour, it may be hoped, will generate in the garden town and foster the growth of healthy civic life. An environmnt enlivened with elegant architectural forms, appropriate decorative symbols and sympathetic colours, harmonising with smiling Nature, never fails to generate psychological stimulants on the mental health of the citizens. Civic environment obviously influences the life and growth of the citizens.

PLATE VII. A NOBLEMAN'S RESIDENCE

The miniature drawing of this structure for the Nobleman is to be seen at the front corner of the road junction shown in Plate VI, facing the Clock Tower. It has been designed to primarily seek comparatively less expensive development of the classical Gupta architecture of Pataliputra which for centuries dominated the civilization and unified the aspirations of the peoples in India and Greater India. The design suggests a modern neo-Gupta style, rooted on traditions, yet not inconsistent with modern ideas and resources, modern building materials, and modern technics of engineering construction.

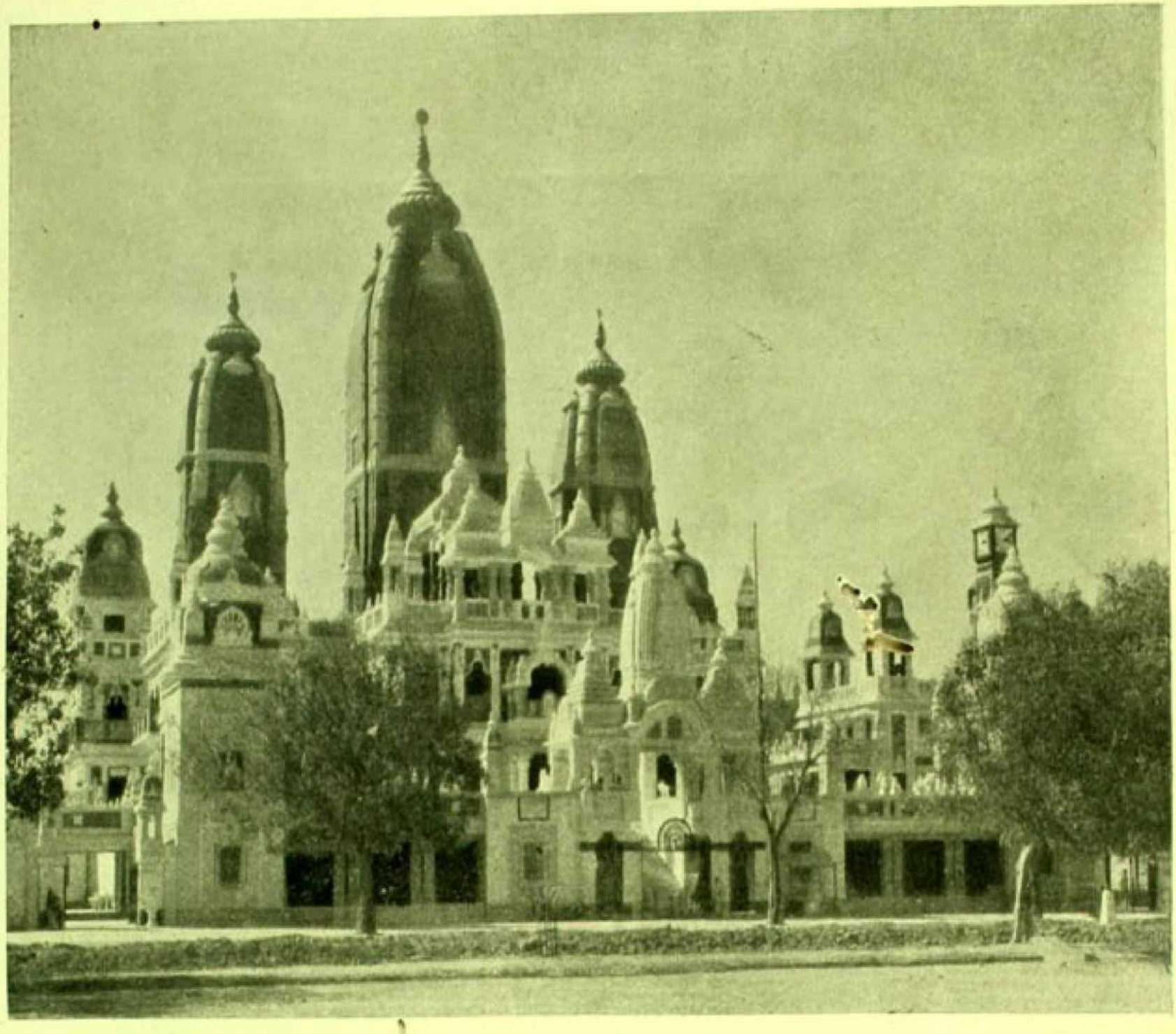
The two lion-pillars flanking the Lion-gate (Simhadwara) are stamped with the personality and dignity of the Nobleman. It is dominated by one large horse-shoe type arch-opening in the facade which



Drawn by Panchugopal Banerjee

NOBLEMAN'S RESIDENCE

Architect : Sris Chandra Chatterjee



Assisted by: M. L. Roy

Lakshmi-Narayan Temple of Birla

Architect: Sris Chandra Chatterjee

has been inspired by the ever-inspiring 'prabha-torana' *i.e.*, aura which found sublime expression in the cave temples built by Asoka the Great and which should symbolize certain types of Indian buildings for all times. The form and shape of the opening recall the halo of the rising Sun touching the infinite expanse of blue ocean. On each corner of the parapet will be erected a "deepa stambha" *i.e.*, lamp-stand to accommodate electric light or oil-lamp. The crowning piece represents the casket of the goddess Lakshmi,-the repository of paddy, celestial wealth and good fortune,—the store house of the bountiful Nature prolific with life, vegetation and mineral deposits.

PLATE VIII. LAKSHMI-NARAYAN TEMPLE OF BIRLA, NEW DELHI

The Kshatriya king of Ayodhyā, having claimed descent from the Sun, used to preside over royal sacrifices inside one sacrificial hut designed and erected in the form of a chariot which, in the opinion of one school of thought, eventually developed into " Sikhara " Temple crowned by " Āmalaka " (pericrap of the blue lotus of " Visnu-Ṣurya ") and marked with a symbol of the Sun. Sun-windows (later on known as " Chaitya "-windows) used to pierce the " Vimana " *i.e.*, " Sikhara " and serve the purpose of chimney for escape of smoke emitted from sacrificial fire inside the temple. The " Mahābodhi " temple of Gaya was a development of such sacrificial hut as was the case with the " Sikhara " temple of the Imperial Guptas of subsequent period.

The recently constructed temple of " Lakshmi-Narayan " on the ridge of New Delhi, attempts at a modern development of an ancient Gupta mo el into a new form of " Sikhara " temple of " Visnu-Surya " seated in a chariot. The group consists of three " Vimanas " : the one in the middle over the images of " Lakshmi " and " Narayana," and the other two

over those of "Siva" and "Sakti (Durga)." It was the desire of the architect to symbolize the middle "Vimana" with a stately figure of "Surya" driving seven horses, overlooking the rising sun, as the temples face east, provide sun-windows and to carve four wheels like those of a chariot, on the four corners of the stone basement, as are seen in the "Surya-temple" of Konark in Orissa. Thereby the temple would represent a chariot with "Visnu-Surya" as world conqueror. The first smile of the Vedic "Usha" (Dawn, Laksmi) would merge in the embrace of "Narayan" (Visnu-Surya) seated in the chariot. But such important items as Surya, sun-window and wheel-carvings were omitted in the course of construction without any knowledge or consent of the architect. However attractive may have been the exterior character of the massive group, the interior has been spoiled by garish over-ornamentation and inferior oil-painting due to ignorance(?) in the course of construction.

India will have to wait for some years more to witness the construction of classical structures in neo-Indian styles. Future students of the proposed schools of Indian Architecture, and the suggested Academies, should be highly qualified to evolve such styles. They shall do so if they receive adequate encouragement, and if their designs are not interfered by whimsical proprietors and their ignorant advisors.

PLATE IX. SCHOOL OF INDIAN ARCHITECTURE AND HUMAN PLANNING

Designed as a Temple of Learning in developed Gupta style the proposed school is expected to embrace every aspect of national and international life and living, and to be rooted on traditions and Philosophy with the Back-ground of Higher Life Forms, treating the World as the Home for all, so as to contribute largely to the evolution of a New Human Order as visioned by Mahatmaji.

Drawn by Panchugopal Banerjee

SCHOOL OF INDIAN ARCHITECTURE AND HUMAN PLANNING

Architect : Sris Chandra Chatterjee

The present enlightened Vice-Chancellor of Calcutta University, at whose instance the design of the school has been prepared, desires that the immense Central Hall of the school be dedicated after Mahatma Gandhi and should be embellished with long lines of frescoes and tempera on bas-reliefs depicting the memorable events in the life of the Sage of Savarmati, as well as with his statue with his benignant countenance bright with supreme spiritual calm, which looked into the eyes of Death without any qualm, skillfully designed, sculptured and enthroned in a "padmasana." (lotus platform).

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Par II

NATIONAL RECONSTRUCTION

PROFESSOR SATYENDRANATH BOSE

The global war has demolished many old edifices and uprooted age-worn customs of many lands. Nations are now busy with programmes of reconstruction. Inspite of tremendous sacrifices in men and material humanity has not succeeded in winning an enduring peace. Distrust and misunderstanding continue to push apart nations who once fought side by side as friends. Reconstruction is often also a re-armament. Minor strifes and clashes continue, and the oppressive fear of a more devastating third war raises the tempo of activity to a feverish frenzy in many lands. Meanwhile the wounds of the war are scarcely healed. World shortage of food and building materials threatens mankind, and transport difficulties continue to hinder the circulation of utility products.

In these uneasy times the leaders of free India have to shoulder the tremendous task of building a prosperous state strong in unity and capable of maintaining its dignity and integrity among nations. Their activity must be in tune with swiftness of the modern tempo. They have to be wise and careful in all their plans as delay and hesitation may produce disastrous results.

Whatever may be regarded as the best plan for achieving their objectives, one may hope unanimity on one essential point. While we have to utilise all the resources of modern science in solving our difficulties, we have also to adopt our methods to suit our national character.

The builders of New India, cannot afford to be mere imitators seeking to transfer to a foreign soil, an alien culture, where it will most probably not take kindly root. The foundation for future prosperity must be truly and securely laid on the ancient tradition of the country, and mode of reconstruction must harmonise with the genius of the people.

This intricate problem has stirred the thought of many patriotic Indians, and various are the solutions offered from time to time for our difficulties. In the accompanying pages Mr. Chatterjee upholds his own views. He has travelled widely and his profession has brought him in intimate contact with people from all parts of India. A deep reverence for the national heritage permeates his thoughts and colours his writings. As a builder and architect he is also familiar with the fruits modern science and civilisation have to offer.

His ideas about future reconstruction deserve careful study by all who love India and are confident of her future.

THE INDIAN OUTLOOK IN LIFE AND ART

SRI BATUKNATH BHATTACHARYA,
Senior Professor of English, Surendranath College, Calcutta

It is the privilege of man to originate audacious dreams and turn them into realities. The present phase in the world's civilisation seems to open the door to such daring visions of a character and magnitude unparalled in the past. The domination of one race over another is fast being liquidated. The realm of Knowledge and Invention is enormously advancing into the heart of Nature and the mystery of cosmic forces. In this context of world-happenings Indian independence effected without blood-shed has released energies of thought and action. And these aspire to swell the stream of speculations as well as endeavours which tend to human Welfare, Peace and Progress. By reason of the continuity of life, culture and tradition and a well-defined individuality maintained through diverse changes of political fortune and across a span of fifty centuries, the nation's self in our historic land has been moulded and enriched in a manner to which there are few analogies in human record. The immediate outcome of the regaining of Indian manhood is a re-awakened sense of value in all adventures of the spirit and achievements of the frame.

The Indian National Planning is more than national in its aims and outlook. Consistently with the rôle that for two millennia India has played amidst neighbouring countries she believes that she is destined to

be the healer of the ailments that afflict mankind to-day. Srijut Srischandra Chatterjee's brochure is a timely challenge and a serious call to all thinking men at home and abroad to recapture the spirit of India as embodied in her art-works, specially architecture, and to enshrine it in a conditioned renascence, a revival adjusted to the necessities of modern life, utilising congenial elements which accrue from scientific researches and inventions that have enriched modern regional plannings abroad.

India and The New Order is a forceful plea which sways the reader by its large survey of the trends in the contemporary world. It reveals the environment in which the resuscitation and reconstruction has to be attempted, the powerful tendencies contrary and conflicting which threaten it, the handicaps and impediments both within and without in the face of which it will have to assert itself. That these have not been made light of but given their due weight shows that Srijut Chatterjee has in view a planning that is more than national. It is rational and proceeds on a grasp of the actualities of the present-day world.

The architectural monuments of the past were not temporary refuges where the wandering spirit of man, a homeless racial genius, was housed. They evidence an integrated view of life—life viewed steadily and viewed as a whole. A shifting transitional stage of life, when the inner being of a community is torn asunder by conflict, by the contrary pull of divergent patterns, is not conducive to the outturn of architectural masterpieces. As the outcome of the highest co-ordination of labour these require the

support of the state, its direction and its ample resources.

Forms of beauty can be the creation of Art informed by Science and inspired by Philosophy as the author has underlined with force. And his dissertation has led him finally to desiderate the reinstatement of the basic social philosophy of the Hindus as concretised in the *Varnasrama* or the system of Four Orders and Four Stages.

This social polity served to harmonise the diverse units of the Hindu social organisation and gave them both energy and joy in life's functions. It acted as a cementing principle giving cohesion and solidarity to ethnic groups at varying levels of growth and culture. To regard this socio-religious fabric as an inelastic cast-iron frame unchanged and unchangeable for all time is to ignore the truths of history.

The outstanding feature of the Hindu social system inextricably bound up with, and growing out of the Hindu outlook on life have been by analysis and historical survey definitely ascertained and may be recalled and restated here :

(1) It laid the emphasis on the life of man as a knot in a network the central point of a web from which connecting lines radiate in all directions and there are links which join him to his family, his forefathers, to all sentient beings, to the entire creation from Brahman to the tiny blade of grass. He lives not for self, nor for personal enjoyment but for service. Sacrifice is the principle of his being. He is a vessel to preserve the ends and purposes of social existence. The rites of his religion are so ordered as to strengthen the links that

bind him all round and afford occasions for the discharge of duties that such a scheme entails.

(2) The social organisation grew not by exclusion or domination but by inclusion and absorption. As Hindu culture penetrated to the farthest corners of the Indian sub-continent and crossed its borders to adjoining lands, the social organism grew by a process similar to cell-reproduction and backward races and the aborigines of the soil were accommodated and given their due places in the community. A mode of life was chalked out for them which without a sharp break with their past advanced them towards the Aryan ideals. This process of accommodation, of stratification rather than complete assimilation, ensured peace and harmony, smoothed and sweetened the relations between the different classes and orders, made them kindly and tolerant neighbours. A variety of cults and modes of religious life and stages of civilisation lived side by side. Diversity without conflict was the unique feature of the social fabric.

(3) Hence ensued the elimination of jealousy and rivalry, of class-war and of the competition for material goods. There was no room for scramble. The castes and sub-castes were self-contained, the division of labour was so dexterously marked off as to rule out antagonism. The occupation and production of one class and those of another did not overlap. The basis of life was not economic conditions but ideological, scope of self-realisation, peace and contentment for all. The stress was laid on the interior purposes of human life, self-fulfilment and consolations of the spirit. To

interpret the course of this social life in terms of the dialectics of materialism is like the application of mechanical laws in psychology. It is akin to holding that chemical laws account for the phenomena of life.

(4) Equality was the rule within the caste. Rich and poor were not sharply divided. They could be and as a rule were united by the ties of marriage. Social relations were honoured in disregard of rank and wealth and office. Pre-eminence was given by purity of birth, by character, by intelligence and learning, by the deeds of the forefathers, by their services and sacrifices for society in the past. The democratic composition of the sub-castes, of the subcastes as social units, is remarkable proof of the truth that the domination of wealth or power was never the ruling idea. And institutions like the *mandal* and the *panchayet* testify to the fact that they were self-governing groups within the larger social framework.

(5) The result of these was the marvellous adaptability of the Hindu society which has given it a longer lease of life than that of any other community. It has lost neither its distinctive character nor its continuity of tradition while at the same time it has not failed to move with the times and to adjust itself to the changing conditions. For the Hindus, Religion is Perpetual and the social economy eternal. And this has been achieved by a proccss of growth and development not by inert clinging to worn-out usages, effete practices, cults and dogmas that had their day and have lost their appeal. It has lived like an organism which takes in and gives off, grows and resists the ravages of time by necessary timely adjustments.

(6) Duty is the motive, accounted just and worthy of all activities. This law of duty ruled all the *Varnas*. The individual in his particular station in life did his function as a sacrifice, dedicating to it the powers and resources that belonged to him. This was the supreme sense of *Dharma* which pervaded the duties and occupations for all. The fulfilment of this imperative *Dharma* conferred no special merit, but there could be no escape from the demerit that attached to its non-observance. There was therefore no occasion for arrogance or undue self-gratulation in the performance of duties that this *Dharma* enjoined. If wealth was gathered by the Vaisya, it was purged of the taint of greed by distribution in gifts; if lands were conquered by the Kshatriya it was only for glory. To the Brahmin honour should be like poison, the mark of the highest type of life was making no provision for the morrow. The ideal conception on which was reared this superb structure though encrusted over with unsightly excrescences and soiled in working and disfigured by contact with alien thought is still held up to view in the monuments and works of art—plastic, pictorial, literary. By the operation of these wholesome and healing principles the mighty soul of Hindusthan has endured and borne blossom and fruit and held within it the seeds of fresh growth and new life while its compeers and coevals dropped off and faded away.

The Hindu social scheme was grounded in a reasoned philosophy of life to which testimony is borne by other aspects of the nation's activities—its arts and letters. The main elements of this philosophy which in their rounded completeness and by the thoroughness of

their conception covered all social duties and relations were the following :

(1) The Oneness of all sentient beings is an intimate realisation of the *chit* or consciousness that pervades all animate creatures. It is a necessary consequence following from a vivid sense of the Supreme Intelligence that informs Creation. This is formulated in the well-known text of the Svetasvatara Upanisad :—

The One God hidden in all creatures, pervading all, the inner Spirit of all beings, controlling all activity who dwells in all creatures, the witness sole and sentient, and devoid of all attributes (that man conceives). A conviction of this truth only can be the basis of the humanities and all philanthropies that refine and elevate life on earth. Nowhere in human thought as in Hindu sacred texts is such insistence on this basic homogeneity of all forms of life which alone can be the foundation of all efforts to unite the nations and to achieve peace on earth and goodwill amongst men.

(2) The sanctity of the Ethical code which and not any particular set of rituals or theological dogmas Indian thought lifted to the status of the Religion Perpetual or Sanatan Dharma. Ethics is to Religion what the soil is to the plant—the source and sustainer of its life—its support, corrective and renovator in decay and corruption. The present vogue of Relativity invading all spheres of thought, the absolute validity of the moral law is denied. This is to disregard the essential constitution of the human mind and the consequences that such an attitude entails on organised social life.

The success of Buddhism which is one facade of the Indian religious fabric and which is the faith of a quarter of the world's population proves the power of a purely ethical religion. With the passing of time its attraction for humanity is bound to increase. The ethical code is the invisible but nonetheless adamantine chain which binds society together and prevents its components from crumbling. Present-day world-movements for unity, peace and co-operation point to the ultimate triumph of the moral bonds and the enormous stake that mankind has in their strength and inviolability.

3. Yet another cardinal truth of India's contribution is the inevitableness in the last analysis of Renunciation as an instrument of social peace and harmony. Not an insatiable scramble for the world's goods or the prizes of life, wealth and luxury, office and power but resignation to the limitations of one's lot can sweeten social existence. This cult is the negation of some of the doctrines now in vogue, that man is an economic creature, that civilization consists in the multiplication of wants, that class-war is the normal condition of social growth, that war is a biological necessity, that salvation lies in an equal distribution of material possessions. Mere economic equality which cannot secure sufficiency for all, even if Nature's resources or man's contrivance could achieve it in the face of the expanding population, can never bring contentment to all. Affluence has failed of it in the case of the fortunate few in all ages. Resignation thus becomes a virtue of necessity like Patience and Charity. And society for its peace and happiness requires that the

glory of Renunciation should be upheld. The most ancient of the Upanisads proclaims this truth.

The Hindu social system ensured peace and harmony by requiring every unit to forego or sacrifice some of the covetable prizes of life and to be content with the rest.

4. Lastly there is the Vision of Truth in regard to life on earth—the brief sojourn of the Soul which is just a neck or strait between two eternities—the infinite past and the infinite future. There is the inexplicable mystery of the human soul, its frail vessel, its precious tenure, its boundless possibilities, its thoughts that wander through eternity.

'Enisled in the sea of life, we mortal millions live alone.' Girt round by kith and kin and the joys of the senses, pelf and power, man's journey is still of the Alone to the Alone. No other record of civilisation has more insistently stressed the dependance of man on the Power other than ourselves which makes for Righteousness, the need of communion with his Maker for peace and happiness. The yearning soul of India is expressed in the classic query of Maitreyi : What shall I do with that by which I shall not be immortal?

And in Sanskrit and the derivative languages of India is treasured up the richest literature perhaps in the world fitted to kindle, feed and keep alive the flame of Devotion and spiritual meditation. And it is a wild delusion to think that though for a time man may look away from the pre-eminently human inner experience of raptures, poignancies and exaltations, he can afford to dismiss it for good as irrelevant to his welfare in obedience to the dictates of Dialectic

Materialism. It is the steadfast awareness of these ultimate realities that lies behind the attitude of beatific serenity the *Samadhi* state which typifies for all time the spiritual outlook and the God-sense of India and the East. Without a consciousness of the Over-soul, this Highest Principle, life is a baffling riddle and enthroning Truth and Non-Violence a cry of the heart and a will-o'-the-wisp. He is lost, says the Upanisad, who holds Brahman to be non-existent.

Art is the blossom of life's fullness and Architecture is the coping stone of the arch of civilisation. Architecture never could flourish, says Ruskin, except when it was subjected to a national law as strict and as minutely authoritative as the laws which regulate religion, policy and social relations. But before this strict, authoritative law is evolved, a world consensus of creative thought is the requisite. The aim of it can only be the *Sarvodaya Samaja*, *i.e.*, the rise for all and its motto :

May all behold manifold good, may all be free from ailments, may all on this earth be happy, may nobody come by grief.

This is in other words a society organised on what may be called the *Sarvatobhadra* model, *i.e.*, universal well-being which the author has hinted. This can only be if the world becomes safe for Peace and Liberty, Truth and Justice, if it determinedly eschews power politics to which the leviathan states of the West are wedded.

The renascence of Indian art is a step towards the reordering of human relations and the reinstatement of the True, the Good and the Beautiful as the motives of human conduct, as principles spread over the widest

commonalty. Srijut Chatterjee's plan or programme is immense in its scope and embraces the life of the masses as well as the classes. Its aim is to resuscitate Indian art in order to serve as an instrument of dissemination of the basic ideas of Indian culture for inspiring a new world-order. It intends to beautify not merely palaces and shrines and public buildings but all sites and venues where men dwell or gather for profit or pleasure. In the best days of integrated life in India towns and villages, temples and fortresses, courts and cloisters were not left to be fashioned pell mell by individual caprice or personal ostentation, but conformed to the Silpasastras that codified and systematised arts. Soil and climate, health and sanitation, beauty and permanence, all factors—physical, mental and spiritual were given due weight. With the disintegration of national life due to alien rule and aggressive foreign culture, this comprehensive *rationale* was forgotten or wilfully laid aside in favour of the latest fashion. And the taste of the educated has degenerated beyond recovery.

The central interest of a nation's life is indicated by the planning of its habitations and their focal point which might be the Agora or Piazza, the Assembly, the Cathedral or the Temple. This last has been the heart of the Indian scheme, not in the temple cities only but even in sparse villages where the stream of life converged on the shrine of Siva.[1] To sanctify life by remembrance of the Omnipresent Reality and the Supreme

[1] The subject has been well treated in "Architect and Architecture: Then and Now" by Sris Chandra Chatterjee, published by the University of Calcutta.

Power has been an abiding motive and the innate affinity of the faiths of Indian origin. Hence the infinite pains taken to adorn and beautify and exquisitely to furnish the shrines and the sculptured figures of deities and devotees. These are marvels of devotion and artistic labour, some of them carved out of living rocks like the Kailasa temple at Ellora or the monolithic temple at Kalugumalai in Tinnevelly. Sravana Belgola in Mysore shows one of the largest free standing images in the world—the colossal figure of Gommateswara in memory of the princely son of the first Tirthankara who gave up his kingdom to become an ascetic. Serpents crawling about his feet, ant-hills rising to his thighs and creepers grown up to his shoulders, he stands immovably serene practising the *kayotsarga* or body-relinquishing austerity. This and like images of meditative calm, of beatific trance, embody the distinctive Indo-Aryan spirit and invite comparison with the statue of the Trojan priest Laocoon at the Vatican which is the emblem of the European spirit—the superb masculine figure struggling for release from the coils of the serpent which holds him as with the grip of a vice—the picture of agony magnificently endured. Conceived and designed on a giant scale and finished with the deftness and delicacy of a lapidary, shrines and images are strewn everywhere in India. They are the summons for all time to meditate on the truths of Indian culture. Infinitely painstaking was the artistic genius which these works exhibit.

The *Silpasastras* were the works of Brahmans whose interest in the subjects was detached and academic, the free play of versatile talent amidst the intricacies of

diverse problems and questions of technique, the joy of the artist soul in wrestling with matter to create forms of beauty. The Brahminic origin of treatises on art is like the old power of European architecture derived, as Ruskin remarks, more from the recluse than the citizen.

Even to-day Indian politicians feel the necessity of the genuine Brahminic spirit for the highest achievement in arts and sciences—the selfless ideal, the life of vocation, self-denial and self-sought privations, yet swaying all by the humility in his mien in the cause of Truth, Beauty and Goodness. It is this spirit which made the Indian artist content to merge his personality in his creations, to leave his masterpieces unsigned and never to care for biographers. The spread of this spirit only can bring peace to a world sick of alarums and excursions and the spectre of a global war every generation and of atomic havoc threatening extinction of the race. For it is this spirit which reared the splendid shrines at Sanchi, Ajanta, Elephanta and Ellora, Angkor Vat and Borobudur. This spirit has made India the home of religions. Actuated by this spirit the author of this publication, with Brahminic zeal and at a personal sacrifice, has dedicated his life to the cause of world harmony to be attained through a new spiritual order and manifested in humane architecture and humane planning. By this spirit alone India can avoid being the storm-centre of the East and turn the world yet into a worthy habitation for Humanity.

GANDHI AND THE NEW ORDER

NIRMAL KUMAR BOSE

What was the new order which Gandhiji stood for ? This is a question which is overshadowed by his successes in the political field. Gandhiji introduced a new weapon of mass-action in his non-violent-non-co-operation. He tried to civilize war, not by pruning its fangs, not by reforming it, but by revolutionizing it. In war, the purpose is to subdue the enemy by punishment, and make him submit to the will of the conqueror. But Gandhiji fashioned a method of direct action—for Satyagraha is nothing if it is not an intensely heroic form of direct action—in which the object is to resist, and while resisting, to take all the punishment on oneself so that the heart of the opponent may be shocked by surprise, and a way opened for building up a new order in which the erstwhile combatants can operate as friends and co-operators.

This surprising innovation in the technique of warfare has not always been accorded the attention and the study that are its due. But what is more painful is that even less attention has been paid to the other counterpart of Satyagraha, namely the economic order of which Satyagraha forms the political counterpart. In one of his after-prayer speeches in Noakhali, Gandhiji said that anything gained by violence could only be defended by violence. And if we wished to practise the art of self-defence through non-violence, we could only preserve such things as can be gained through

non-violence, that is, things which we can share with all, and for whose acquisition we shall never forfeit the goodwill of the rest of mankind. The fruits of exploitation can therefore never be preserved by non-violent means.

This is an aspect of Gandhiji's teachings which deserves careful attention and special emphasis at the present moment.

After long experience Gandhiji had come to the conclusion that non-violent economics meant a decentralization of the means of production as well as of distribution, a public ownership of the means of production of the elementary needs of human life, and, in order to raise the standard of living, a *voluntary* centralization between human groups, where such centralization is called for. If centralization meant subjection for one and dominance for another, he stood four-square against it. He would far rather go back to lower comforts based on freedom than retain higher comforts based on subservience. For he held that the freedom of the human soul was the foundation on which alone progress was based.

Many often approached him with questions regarding machinery and modern systems of industrial organization. Gandhiji had enough experience of palaeotechnic organization to know of its bitter fruits. He was against machinery when it meant subjection of the human soul; he battled against it when it allowed one class to rule over another. But, if it meant freedom, *not for some but for all*, he could bless it with all his heart.

Gandhiji was also often looked upon as a representative of the outmoded religion of Nationalism. It was

wrong to think so, for he was always above that. For him, humanity was one; not merely as a distant idea, but for an ideal which was to inform our daily lives, both as individuals as well as a nation. When, much against his will, India was partitioned through the intervention of the British Power, and portions of Pakistan suffered from ravaging floods, he advised the authorities of India to divert shiploads of food from her own hungry mouths so that our neighbours might live. For what was the worth of our happiness, if our neighbour suffered from hunger and want? This was not a late development in his ideas. For, many years ago, as early as 1925, he had said in course of one of speeches:

We want freedom for our country, but not at the expense or exploitation of others, not so as to degrade other countries. For my own part, I do not want the freedom of India if it means the extinction of England or the disappearance of Englishmen. I want freedom of my country so that the resources of my country might be utilised for the benefit of mankind. Just as the cult of patriotism teaches us to-day that the individual has to die for the family, the family has to die for the village, the village for the district, the district for the province, and the province for the country, even so a country has to be free in order that it may die, if necessary, for the benefit of the world. My love of nationalism or my idea of nationalism is that my country may become free, that if need be the whole country may die, so that the human races may live. There is no room for race hatred here. Let that be our nationalism.

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Similarly, in course of a speech in Europe, while on his way back to India from the Round Table Conference in 1931, he said :

There is no limit to extending our services to our neighbours across State-made frontiers. God never made those frontiers.

Now that Gandhiji is no longer with us, let his spirit abide, and be a guide and an inspiration to us in the intensely dark days through which the whole world seems to be passing to-day.

The author of the present book, who confesses that he has derived inspiration from the life and teaching of Mahatma Gandhi, has tried to give a concrete shape in the accompanying pages to some of the ideas for which Gandhiji stood. While planning, we are often led to neglect the human individual, on whose well-being alone the virtue of any civilization must rest. This is a mistake which he has tried to avoid.

If the present book succeeds, at least, in maintaining the emphasis at the right place, and helps the reader not to lose sight of the human being in a dazzle of mechanical successes, it would have duly served its purpose.

A PLEA FOR SOCIAL SURVEY

B. N. BANERJEA

Srijut Chatterjee has covered a wide field of planning and has made several concrete suggestions on the subject of planning with a view to maintaining a balance in socio-economic organisation. While I was particularly impressed by his lucid discussion of village planning as well as his comments on regional planning, I felt that this should be also an occasion of considering whether in connection with such plans a Land Utilisation Survey, as has recently been undertaken in Great Britain, could not also be considered. In the context of the need for planned rehabilitation and also the maximum utilisation of our resources it is certainly worth while having land-use maps. One of the commonest objections to such mapping of practically every foot of ground—namely, that changes in the land-use are so rapid as to render almost useless a mapping of them,—is no longer held to be valid. Further, such a survey alone can provide the essential and scientific information which can be the basis of *regional* planning, strictly speaking.

Shortly before the census of 1941 I had made a strong plea before the Calcutta Rotary Club for a survey of Calcutta life and labour on the lines of what had once been done for London by Booth and followed up by the London School of Economics. I think, not only for Calcutta, but also for many other big and small cities the absence of basic information

is one of the principal obstacles to rational thinking in the matter of many of our civic and corporate problems.

There is no doubt that we in India suffer not only from the evil legacies of foreign rule and the consequent inertia, but also the inhibition which comes from the imposition of a capitalist economic structure on quasi-feudal basis. Along with large changes in other spheres I am sure the time has come to allow individuals and small groups to have a freer play of their artistic impulses. I hope the sculptor and the artist for instance, like the organiser and the educator, would have their claims recognised in being allowed to assist in planning for not only a good life but also a full life. While *colonies* develop out of primary urges and give shelter to the homeless, *communities* are the result of home-making by people who have settled themselves on lands and certain modes of living. The ugly colonies and the jettisoned houses of people in most of the cities of India after world war II, have to be replaced by *homes* inhabited by people who mean to build up communities. Community financing of such planned towns and modernised villages have also to be organised and the spirit of abject dependance and beggary on state-finance for *all* such developments given up. If proper surveys have been made and rough plans drawn up, it is possible to have many and varied patterns for say, a weaver's colony, a fisherman's colony, a basic training school centre, a planned development round river-side steamer station, or a new railway junction, or a marketing centre, or a centre of religious

pilgrimage—in which competing ideas and plans find an opportunity of expression and experimentation, though not, of course, to the extent of disturbing either the character of the community or preventing future developments. Sj. Chatterjee's brochure opens up possibilities of developments which are yet untried, but which might give scope to the latent genius of many in the country, provided there is sufficient encouragement for them in the new atmosphere engendered by an Independent India.

NEW LIFE

G. E. MONOD-HERZEN, D.SC. (PARIS),
Director of Education and President of Archæological Society, French India.

Architecture is expressing the framework of our life, it is building the purity of our faith, the dignity of our regime. What we call style in architecture is the manifestation of a special poise in the stream of an everchanging evolution, what can be seen is a particular aspect of a civilization. India in its milleniums of life created a wonderful set of styles.

To-day India begins a new life and very naturally Sris Chandra Chatterjee expects the new social order to give rise to a new architectural style. Conscious of the fact that such a style by its very existence will prove that India is one nation, a really independent and autonomous body, he feels that the reverse is true and to help the Indians to discover their own style is to help them to build their new civilization.

This is indeed a very high conception of architecture and a very Indian one. Its first practical application is the planning of rural areas. India is a rural country and poor one. If a new order has to be created, its first expression must be not in palaces and temples but in a cleaner, healthier, and happier rural life.

Fully aware of the possibilities of Western and American technique, he dreamed not of copying or of a union, but a full synthesis of east and west in a new form of Indian life. To this work he calls to the youth of India : may his words receive a full response for the glory of the Bharata Varsha.

HUMAN PLANNING

DR. KALIDAS NAG, M.A., D.LITT. (PARIS),
OFFICERE D' ACADEMIE

Sthapatya-Visharad Srischandra Chatterjee is himself an institution. Starting his career as an Engineer in Bengal and Bikaner he progressively transcended the limits of business career and dedicated himself to the cause of revival of Indian Architecture. Like a true pilgrim he travelled all over India and developed his study of Indian Architectural "Orders" into that of a "New Order" of the world. Naturally we find him projecting his plans and visions from New Delhi to New York and from Madura to Moscow. The modern Science of Town and Rural Planning has come to enrich and strengthen his original idea of Regional planning and so he finished by developing his Indian plan into a veritable New Order plan of entire humanity. It is in this universal aspect of his studies that attracted the attention of many outstanding western authorities. It is highly opportune therefore that the University of Calcutta has adopted his scheme and syllabus for a School of Indian Architecture and Regional Planning. Both the provincial and the Central Government,—the Indian Universities Commission and the Ministry of Education, Government of India,—should come forward to support his scheme which, in a functioning state, will draw into a line of cultural collaboration the best planners of the East and the West. The land of Tagore and Gandhi can and

should develop such a School of Human Planning where not only the utilitarian but the humanitarian impulses of Man will be given the fullest scope for self-expression. From the 3rd millennium B. C. Indus Valley civilisation to the age of the Sages of Santi-niketan and Savarmati, India, through countless political upheavals, wars and devastations, has continued to create new ideas and plans of a New World Order. Srijut Chatterjee has thus given expression to those spiritual and aesthetic aspirations of his people through his numerous essays and studies extending over more than a quarter of a century. Granted adequate support from India and abroad, he will, I hope, be able to develop here in Free India, through his School, a veritable Laboratory of Human Planning so necessary to counteract the suicidal tendencies of a war-mad world. The present neurosis is the byeproduct of selfishness and compartmentalism in thought and action. Mahatma Gandhi dedicated his life to drag humanity out of this deadly quagmire. A new Ethics must lead to a new system of Education, as has been forcibly argued by the author, and we are sure that his voice will be heard, sooner or later, in the comity of nations.

Few Words on

EVOLUTION OF CIVILIZATION

Mechanical contrivance, for the use of the Neanderthral Men existed in the early Palæolithic Age of remote antiquity in the form of wooden clubs and spears as they lived in the caves in jungles. A Stone Age hunter harnessed his reindeer into a primitive form of sledge as a mechanical applinace to drag logs of timber for constructing cottages and collecting fuels. The Neolithic Men used the Machine in the form of fire-drill and potter's wheel. The Aurginaceine of the newer Paleolithic stock introduced not only flint instruments but also statuettes and paintings in cave walls.

The peoples of the Neolithic and early Bronze Ages built their cottage dwellings on piles in the midst of waters that are known to-day as Lake Dwellings. Types of such dwellings erected for their safety in regions infested by injurious animals still exist. Timber platforms and utensils of wood, bone, stone and earthenware and crude ornaments, fishing nets and garments have been found in those cottages. Those structures belonged to small patriarchal groups. Larger groups used to assemble in fertile plains. Their skin-tent dwellings were surrounded by ditches,

Between 15000 and 6000 B.C., the Neolithics spread through forests over the ancient world. Their life currents flowed along two divergent channels. One towards a wandering nomadic occupation in jungles in the pursuit of pasture and the other towards settling in river valleys. Those who migrated river valleys evolved irrigation and agriculture, built villages and towns and, gradually, developed socialism and civilization. Gold, the first known of the metals was used in bone ornaments with jet and amber. About 6000 years ago they began the use of copper. Copper ore was smelted and cast in moulds made to the shape of stone implements previously introduced.

Bronze and brass were evolved thereafter. Finally, about 3000 years ago, men began to smelt iron by blowing up charcoal fire and wrought it by heating and hammering.

Peninsular India, which in places represented the earliest crust of the earth, once formed a part of an altogether different continent that extended from South Africa through Australia as far as South America. Geologists have classified it as Gondwana. The Western Ghat mountains then separated the eastern from the western part of Gondwana.

In the opinion of Huxley, the Egyptians and the Dravidians of South India belonged to a common stock. The Dravidians, it is said, substantially contributed to the Mohenjo-Daro civilization. The Indus Valley then had intercourse with Egypt, Sumer and Mesopotamia.

In the ancient world wherever primitive civilization set its foot, there almost always arose a temple of quaint form with a shrine and an image usually of some pseudo-animal character. Before it stood an altar for sacrifice. The temple precinct formed a center of social functions and ceremonial festivities. The temple priest performed the functions of astronomer, magician and doctor. The peoples approached him for settling social affairs and disputes, for soliciting his help in averting the wrath of supernatural evil beings and for propitiating metaphysical phenomenons of Nature as well as for acquiring knowledge and magical skill. The temple priest, obviously, was a source of power, advice and instruction. With its gradual progressive development, the temple served as an observatory, library, museum, clinic and a treasure house of wisdom. The earliest civilized governments were advised, at times controlled, by priestly order. Aryan peoples took over the institutional ideals of a temple and the sense of community overlordship from the Semitic people they conquered. All the values of human life (secular and spiritual) and all essentials for human living (food and clothing, knowledge of architectural arts and community planning, study of flora and fauna, astronomy and astrology, even applied science) were more or less adjusted by them in proportion to their religious merits.

Indian life and civilization has had been controlled for thousands of years by religious order emanating from temple establishment. Indian spiritual beliefs and practises have throughout ages kept intact the solidarity of Indian socio-religious aspiration. Greece and Rome, Egypt and Carthage, Assyria and Babylonia and other countries which evolved great material civilization, disappeared from the face of the earth. But, because the civilization of India was rooted on the values of spirit and reality, it has still continued as a living force.

Recently, Russian Bolshevism and German Socialism marched ahead to destroy the faith and conviction of older churches. The Social Revolution in Spain (the nation which enacted the most brutal carange on the grand Red Indian Civilization of ancient Central America) enraged a conflict between the Roman Church and Communism. The Napoleon despised the Christian churches in the name of humanity. The Fatimids in Egypt, the Safavi in Persia, the Mahdi in Sudan and the Taiping in China carried their cruel movements in the name of religion and humanity.

A New Civilization with just and righteous socio-economic order and democratic institutions can alone and only bring lasting peace, security and harmony in this world of Material Powers.

SRIS CHANDRA CHATTERJEE

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Part III

OBSERVATIONS OF EMINENT PERSONS ON CLAIMS OF INDIAN ARCHITECTURE

Mrs. Pearl Buck, the Nobel Laureate of America, has considered that India has a rightful claim to guide the destiny of the New Civilisation which is in the process of making. She expressed in addressing a meeting at Ohio : " Only the people of the East can frame real and durable organisation for world peace because only they can really comprehend the laws of human nature. When the West would be able to receive the Wisdom of the East then it would result in the greatest renaissance that the world has ever seen."

Dr. Harvey Wiley Corbett, M.A., M.Arch., Litt.D., etc., former President of the Architectural League of New York, Chairman of the Architectural Commission of the World's Fair in Chicago, 1933, Departmental Editor on Architecture of the latest edition of the Encyclopædia Britannica, and one of the Architects responsible for the creation of the Rockfeller Radio Centre of New York, the most gigantic sky-scraper in the World, in reviewing and illustrating the works of Mr. Chatterjee in *Architecture* of the New York, observed :—

" We of the West, specially in the U. S. A., concerned primarily with our own progress, commercial and cultural, immeshed in our own problems and difficulties, are hardly conscious of India with her teeming population two or three times the size of our own. There is the oldest continuing civilization of which we have a record, architecture, sculpture, painting, crafts that have been slowly developing through the centuries while we pride curselves on our achievements of 200 years at the most.

India is today threatened by the march of Western civilization. The World may lose so much of real value in art, philosophy and spiritual force that we should look with interest and keen attention to the effort now being successfully made by Mr. Sris Chandra Chatterjee to establish a real Renaissance of Indian Architecture in his own country.

Mr. Chatterjee is a man of broad culture, has travelled extensively, and knows what is best of western science and engineering. But he also realises that the truly functional expression of a people rests in their architecture and allied arts. Their spiritual and philosophic beliefs are best expressed through this medium. While he realises that India must come abreast of modern trends in town-planning, sanitation and commercial development, he still knows that through the preservation of her arts she will retain her individuality as a people and, therefore, retain for the world those rare qualities of spiritual value which the onrush of industrialism has so seriously threatened.

Mr. Chatterjee goes far beyond a simple theory as to what an architectural renaissance would mean in India. As a practising architect he has executed many buildings in which he definitely shows not only a keen sense of rational plan arrangement fitting modern needs but great architectural skill in retaining and adopting motives which recall beautifully the best of Indian art and yet are not lacking in originality. In addition to actual work erected, he has allowed his imagination to play with important potential problems dealing with those in a manner which points the way to Government authorities and others occupying positions of power whereby real achievements in city plan could be accomplished. He possesses that rare faculty of seeing his problems from a broad constructive angle and at the sametime deals with the most minute details of sculpture and ornament with studied care and characteristic spirits."

In a letter addressed to Mr. Chatterjee from Middlesex, 3rd September, 1945, Professor Sir Charles Reilly, O.B.E., M.A., LL.D., F.R.I.B.A., Royal Gold Medallist in Architecture for 1943, wrote :—

"It seems to me you have a clear course before you. India not only needs to free herself of the western architectural motives we in our ignorance brought to her, but to erect building as simple and powerful as the best the modern world can produce, yet occasionally and in the right place and for the right purpose to introduce carving and ornament as beautiful and mysterious as that I saw when I visited the Caves of Elephanta. When she has done this she will have given to the world a greater gift than that of any other nation. I like to believe that it is possible and that you are right when you say Indian Architecture with its universal plastic language is a great agency for evoking the spirit of universal brotherhood. I hope that it is so and that India may never again erect the bad European buildings I also saw in Bombay."

Copy of a letter from Dr. Ely Jacques Kahn, ex-Chairman of the Architectural League of New York :—

"KAHN & JACOBS,
ARCHITECTS.

TWO PARK AVENUE
NEW YORK 16, N. Y.

September, 9, 1948.

MR. SRIS CHANDRA CHATTERJEE
CALCUTTA UNIVERSITY
CALCUTTA, INDIA.

DEAR MR. CHATTERJEE,

I was interested in receiving a copy of your booklet *Architect and Architecture; Then and Now* which I have just finished reading.

I assure you that I am in warm sympathy with your effort to develop an architecture in India, free of purely artificial reflections of cultures that have

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no direct relationship to your own. I have this impression very distinctly forced upon me when I was travelling throughout India and am equally aware that it will take some time to work through a program that has the understanding of to-day's scientific developments and, at the same time, represents the profound culture of an ancient people.

What we are doing in America is important to us because we have certain specific problems which, however, are totally different than yours. If you can train young people to understand your problems and solve the questions that arise with to-day's economic demands, you will have accomplished a great deal.

I assure you of my warmest sympathy and you can rest assured that *many of us are keenly awaiting the product of the new force that India will now generate.*

Cordially yours,

ELY JACQUES KAHN "

Lieut. Colonel Albert Mayer, a distinguished architect and townplanner of the United States, Consultant to Government bodies including New York State Division of Housing, a Lecturer in Housing and Planning at Massachusetts Institute of Technology, Planning Consultant to the Indian Government of U.P., and for Replanning of Bombay, has recorded :

"From my interesting discussion with Mr. Sris Chandra Chatterjee, Architect, I am sure you have some, but probably nothing like enough. If I have convinced you that you need them, how will you get them? Well, I have seen the proposal of Mr. Chatterjee and his associates for establishing a School of Indian Architecture and Regional Planning at the University of Calcutta. *I have read the syllabus very carefully and I can say to you sincerely that if you can possibly bring it about you will have a School superior to anything in the Western World,* for the Committee that formulated it evidently was using the best thought and developments that we have painfully evolved by experience of years, and in various places. *I feel deeply that every possible effort should be exerted to make such a school a reality as quickly as possible.*" *(The Calcutta Review, August, 1944, page 144.)*

From the Editorial of American *Architecture* of July, 1931 :

" There is strong probability that India may suffer, as Japan has already done, from the roiling of her stream of art by western influences. Standing steadfastly against such loss of their country's personality in art are a few such men as Sris Chandra Chatterjee."

E. B. Havell, Oxford :

"Mr. ..... Chatterjee is working on the right lines and has a grasp of the problems to be solved....."

Translation from the *Journal of Hungarian Society of Engineers and Architects* of December, 1942 :

".....Hungarian architects or students, chiefly future professors, could go for study to India ..... The theme of Mr. Chatterjee's life-work corresponds greatly with the activity of our unforgetable Odon Lechner who investigated after the old Hungarian Architectures and found their root just in India. So the idea of getting connected with architect and architecture of India more closely is timely now."

Stephen de Cserepy,
Architect, Professor, University of Budapest, Hungary.

Dr. W. Norman Brown, Director, Indus Valley Excavation, India :

" Mr. Chatterjee's purpose to continue in modern India the course of architecture pursued through the millenia of Indian civilization, but adapting that traditional architecture to the demands of today seems to me admirable."

H. Bonnet, Director, League of Nations, Paris, 15th November, 1934 :

" At a time when so many conflicting forces, both in the Western and Eastern hemispheres, are tending to trammel spiritual freedom, to reduce in an ever-increasing measure the possibilities open to pure intellectual activity in its contemplative action from which springs the beauty that finds expression in the Arts, the International Institute of Intellectual Co-operation is deeply gratified to learn of the formation of a great Indian National School of Architecture.....treasures of ancient India will engender a spirit of intense harmony in present-day India and place other nations in the best possible position for appreciating its genius."

A. M. Schaemminger, Assistant Director, Austro-American Institute of Education, Vienna :

" The new movement in India which tends to develop the innate artistic forces of the Indian people and on the background of Indian culture to express the Indian Soul will have the sympathies of all those whose feeling extends beyond their own country and who have not ceased to believe that the manifestations of the soul are more important than everything else."

Dr. Miss Frances Grant, Vice-President, Roerich Museum, New York. 20th January, 1931 :—

" Dr. Harvey Wiley Corbett has been so splendidly impressed by Mr. Sris Chandra Chatterjee's work and his enthusiasm for his native art that he is hoping to have his efforts represented in the Chicago Exhibition."

Interviewed by the Free Press of India Sj. Sris Chandra Chatterjee made the following statement at Delhi :—

" The object of my coming up to Delhi was firstly to enlist the support of the Government of India in the way of my going to the forthcoming World

Exhibition in Chicago... .....But, the Government having dropped the idea of participating in the exhibition, I had to abandon my project. I have found it impossible even to get permission to approach His Excellency the Viceroy and secure at least his moral support."

The Hindusthan Times, March 7, 1933.

In reviewing the works of Mr. Sris Chandra Chatterjee in "*Building Art-Building Industry*" of June, 1932, the City Planning Architect of the University of Budapest comments :—

"....Every one of the highest societies paid tribute to his original lectures.....As Rabindranath Tagore creates poetry in India, so does Chatterjee architecture : he is one of the greatest living architects."

Municipal Engineering, London, 26-11-1940 :—

"Mr. Sris Chandra Chatterjee, the well-known architect and exponent of Indian arts, has been trying to organise an All-India Institute of Indian Architecture with a view to designing and directing construction of Civic Structures in indigenous styles and imparting practical training to students of architecture. The Scheme has received influential support all over the country. Thanks to his efforts, Indian architecture is gradually finding place in the curriculum of educational institutions."

Sir C. V. Raman, Kt., N.L. : —

"India today, if she is to be true to herself must seek to find her own soul in architecture. If there is any aspect of æsthetics which has an intensely practical value, it is architecture. By practical examples, Mr. Chatterjee has shown what can be done even with the restricted opportunities at present available."

Dr. Sir Sarvapalli Radhakrishnan :—

"Our education at the present moment is defective on the side of the right training of emotions and artistic culture. And any attempt to remedy this deficiency is always welcome.

It is my sincere hope and desire that those in Municipalities and Universities who are in a position to assist Mr. Chatterjee and utilise his great talents will do so in larger numbers in years to come."

Seth Jugal Kishore Birla :—

"Fear of cost should no longer stand as a stumbling block in the way of the renaissance of our indigenous architecture. The temples and edifices which are under construction on the Ridge of New Delhi for the *Lakshmi-Narayan Temple* and *Hindu Mahasabha* suggest a great future of Indian architecture. Sris Chandra Chatterjee is to be congratulated for the designs and directing the constructions."

Dr. Abanindranath Tagore :—

"You can practically demonstrate that Indian Architecture can be revived without prohibitive expenditure....I cannot help admiring you for your indefatigable labour to restore our heritage to us and it is my earnest hope that your path be easy for you in this great work you have undertaken."

Hon'ble Dr. Syamaprasad Mookerjee :—

"Mr. Chatterjee represents the spirit of Renaissance in Indian Architecture. It is in this light, and this alone, that his work should be judged and appreciated. As a worthy exponent of the spirit of Indian Architecture and Culture, may he not fail to interest seekers of Truth and Beauty, irrespective of race, creed or community. Due mainly to lack of State support, the healthy and artistic life of India could not be revived to some extent at least."

Netaji Subhas Chandra Bose :—

"Mr Chatterjee appeared before us just in time as the pioneer of a new School of Architecture, distinctively Indian in character. He is fully responsive to Western and other foreign influence but after assimilating these and after adapting himself to modern condition, he is able to give something new to India and to the world. I wish him success with all my heart for I know that his success means the furtherance of the Renaissance of Indian Architecture and a further enrichment of the civilization of world."

In his FOREWORD to *Architect and Architecture : Then and Now* written by the author, Hon'ble Dr. B. C. Roy, Premier, West Bengal Government, testifies :—

"...The School will teach rational co-ordination of various items of human thought and activity in a manner which has not been attempted by any existing institution in India. It will offer an integrated philosophy of building planning, based on a high level of technique, will evolve a new standard of aesthetics and ethics.

Sri Sris Chandra Chatterjee is widely known for his indefatigable efforts to resuscitate Indian Architecture against tremendous oppositions. His sacrifices in the cause have been unique. It may be hoped that the Government of Indian Union will actviely co-operate with these nation-building activities."

Hon'ble Pandit Jawaharlal Nehru :—

"Although I am engrossed in politics I should like to assure that I am very much interested in the work Mr. Sris Chandra Chatterjee is doing. As an eminent architect he is producing buildings based on old Indian Styles, beautiful and yet not very costly, and his endeavours appear to me to be praiseworthy and deserving of encouragement."